

ESN RbR to L4 traceability (1 of 204)

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0003#A	The ESN shall enable researchers on existing networks (TCP/IP and GOSIP) to gain access to data and ECS services in a transparent manner to the underlying differences between the networks.	A: Applicable (w/o GOSIP requirement and minimum connectivity to network for ftp to AI&T.)	C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-ISS-02520	IR1	The ISS shall provide services based on the Open Shortest Path First (OSPF) protocol referenced in RFC 1583 to route traffic between the source and destination nodes, maintain route databases, and exchange routing information between networks.
			C-ISS-02530	IR1	The ISS shall provide services based on the Routing Information Protocol (RIP) referenced in RFC 1058 to route network traffic between the source and destination nodes.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0003#B	The ESN shall enable researchers on existing networks (TCP/IP and GOSIP) to gain access to data and ECS services in a transparent manner to the underlying differences between the networks.	B: ASTER GDS interfaces to EDC DAAC only.	C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.
			C-ISS-21010	B	The ISS-INHW CI shall provide LANs at the following sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-ISS-02520	IR1	The ISS shall provide services based on the Open Shortest Path First (OSPF) protocol referenced in RFC 1583 to route traffic between the source and destination nodes, maintain route databases, and exchange routing information between networks.
			C-ISS-02530	IR1	The ISS shall provide services based on the Routing Information Protocol (RIP) referenced in RFC 1058 to route network traffic between the source and destination nodes.
ESN-0003#I1	The ESN shall enable researchers on existing networks (TCP/IP and GOSIP) to gain access to data and ECS services in a transparent manner to the underlying differences between the networks.	IR1: V0 Network where possible; NSI otherwise.	C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.
ESN-0005#A	The ESN internal networks shall be dedicated networks linking ECS facilities for internal ECS operations (e.g., scheduling, product generation, QA validation).		C-HRD-36020	A	The ISS shall provide wide area bandwidth necessary to support data transfer in accordance with Release A requirements specified in "Communications Requirements for the ECS Project", 194-220-SE3-001.
			C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
ESN-0005#B	The ESN internal networks shall be dedicated networks linking ECS facilities for internal ECS operations (e.g., scheduling, product generation, QA validation).		C-ISS-02320	B	The ISS-INHW CI shall provide wide area bandwidth necessary to support data transfer in accordance with requirements specified in "Communications Requirements for the ECS Project", 194-220-SE3-001.
			C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
ESN-0006#A	ESN shall interface with NSI to reach all external non-ECS network-attached facilities and science users.		C-ISS-01020	IR1	The ISS shall interface with NSI or an alternate Internet provider at GSFC, MSFC, LaRC and EDC to provide DAAC access to science users in accordance with the following documents: a. DID 220, "Communications Requirements for the ECS Project" 194-220-SE3-001 b. Interface Requirements Document between EOSDIS Core System (ECS) and the NASA Science Internet (NSI), 194-219-SE1-001

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0006#B	ESN shall interface with NSI to reach all external non-ECS network-attached facilities and science users.		C-ISS-11020	B	The ISS shall interface with NSI at GSFC, MSFC, LaRC, EDC, JPL, NSIDC, ORNL, and ASF to provide DAAC access to science users in accordance with the following documents: a. DID 220, "Communications Requirements for the ECS Project" 194-220-SE3-001 b. Interface Requirements Document between EOSDIS Core System (ECS) and the NASA Science Internet (NSI), 194-219-SE1-001
ESN-0006#Ir1	ESN shall interface with NSI to reach all external non-ECS network-attached facilities and science users.	IR1: TRMM and AM-1 to SCFs.	C-ISS-01020	IR1	The ISS shall interface with NSI or an alternate Internet provider at GSFC, MSFC, LaRC and EDC to provide DAAC access to science users in accordance with the following documents: a. DID 220, "Communications Requirements for the ECS Project" 194-220-SE3-001 b. Interface Requirements Document between EOSDIS Core System (ECS) and the NASA Science Internet (NSI), 194-219-SE1-001
ESN-0007#A	The ESN shall restrict the use of ECS inter-DAAC wide area networks for data transmission between ECS DAACs and other facilities that are directly attached to the ECS external network.		C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-ISS-01080	IR1	The ISS shall reuse the V0 WAN in order to provide connectivity between V0 network nodes and V1 network nodes and to provide interoperability between the systems.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
ESN-0007#B	The ESN shall restrict the use of ECS inter-DAAC wide area networks for data transmission between ECS DAACs and other facilities that are directly attached to the ECS external network.		C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-ISS-21010	B	The ISS-INHW CI shall provide LANs at the following sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0010#A	ESN shall provide the following standard services: a. Data Transfer and Management Services b. Electronic Messaging Service c. Remote Terminal Service d. Process to Process Communication Service e. Directory and User Access Control Service f. Network Management Service g. Network Security and Access Control Service h. Internetwork Interface Services i. Bulletin Board Service	A: "mission critical" designation. Those that refer to NSI should be "mission success"?	C-MSS-16010	A	MSS Monitor/Control Service shall communicate via ECS management protocol with the Management Agent Service in test or operational mode.
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-70110	A	The MSS site Security Management Application Service shall provide the capability to specify privileges for authorized users and user groups for access to ECS resources.
			C-CSS-61840	A	The CSS Electronic Mail Service shall be capable of sending a message to multiple destinations.
			C-CSS-63060	A	The CSS Virtual Terminal shall support X applications.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-CSS-61290	A	The CSS Electronic Mail Service shall provide functionality to send reply for a received message to a. the author b. to all destinations addressed in the incoming message MailTool
			C-CSS-61310	A	The CSS Electronic Mail Service shall provide a MAILBOX where all incoming messages for operators will be stored.
			C-CSS-61320	A	The CSS Electronic Mail Service shall provide operator defined folders to store messages for long term archive.
			C-CSS-61330	A	The CSS Electronic Mail Service shall allow copying and/or moving messages from the MAILBOX to the operator specified folders.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-61360	A	The CSS Electronic Mail Service shall be capable of showing a summary of all messages in the MAILBOX or in a folder which minimally contains: a. title/subject of the message b. name of the author c. date/time of the message origination
			C-CSS-61370	A	The CSS Electronic Mail Service shall provide an editor to compose a message.
			C-CSS-61380	A	The CSS Electronic Mail Service shall provide a title/subject field for a message.
			C-CSS-61390	A	The CSS Electronic Mail Service shall allow a message to be sent to multiple destinations.
			C-CSS-61400	A	The CSS Electronic Mail Service shall allow destinations of the following types: a. a single user b. a position which may be managed by one or many operators c. a site which may consists of several operators.
			C-CSS-61410	A	The CSS Electronic Mail Service shall provide a capability to maintain public mailing lists (each list may contain multiple destination) which are accessible to all operators.
			C-CSS-61420	A	The CSS Electronic Mail Service shall provide a capability to maintain private mailing lists (each list may contain multiple destination) for individual operators.
			C-CSS-61430	A	The CSS Electronic Mail Service shall allow attaching either text or binary files to a message.
			C-CSS-61440	A	The CSS Electronic Mail Service shall allow discarding message(s) from the MAILBOX without saving.
			C-CSS-61450	A	The CSS Electronic Mail Service shall have the capability to forward a message.
			C-CSS-61460	A	The CSS Electronic Mail Service shall allow cut/copy/paste/delete/undo operations in the editor.
			C-CSS-61470	A	The CSS Electronic Mail Service shall provide navigation methods to go the next or previous message in the MAILBOX or selected folder.
			C-CSS-61490	A	The CSS Electronic Mail Service shall provide the capability to search for keywords in messages.
			C-CSS-61500	A	The CSS Electronic Mail Service shall provide the capability to search the MAILBOX or a folder for keywords in title text.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-61510	A	The CSS Electronic Mail Service shall provide the capability to search the MAILBOX or folders for a specific author.
			C-CSS-61520	A	The CSS Electronic Mail Service shall accept mailing lists as valid destinations.
			C-CSS-61800	A	The CSS Electronic Mail Service shall provide the capability to send an electronic mail message non-interactively from an application.
			C-CSS-61810	A	The CSS Electronic Mail Service shall allow attaching multiple text or binary files to the mail message.
			C-CSS-61820	A	The CSS Electronic Mail Service shall accept a file name as input for the message text.
			C-CSS-61850	A	The CSS Electronic Mail Service shall accept mailing lists as valid destinations.
			C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
			C-CSS-60900	A	The CSS File Access Service shall provide an API which allows applications to transfer files.
			C-CSS-60910	A	The CSS File Access Service shall allow for file type selection (ASCII or Binary).
			C-CSS-60920	A	The CSS File Access Service shall accept authentication information for file transfers.
			C-CSS-62050	A	The CSS Bulletin Board Service shall host the user registration service.
			C-CSS-62060	A	The CSS Bulletin Board Service shall provide the capability for copying files.
			C-CSS-62070	A	The CSS Bulletin Board Service shall support download of ECS toolkits.
			C-CSS-62080	A	The CSS Bulletin Board Service shall collect and maintain access history and statistical information for the service.
			C-CSS-62130	A	The CSS Bulletin Board Service shall provide a "What's new" feature which informs the user of the new information available on the bulletin boards.
			C-CSS-62390	A	The CSS Bulletin Board Service shall allow attaching ASCII or binary files to a message.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62800	A	The CSS Bulletin Board Service shall interface for the applications to post a message to bulletin boards.
			C-CSS-62810	A	The CSS Bulletin Board Service shall allow attaching ASCII and binary files to a message.
			C-CSS-62820	A	The CSS Bulletin Board Service shall allow a message to be posted to multiple bulletin boards.
			C-CSS-01000	A	The CSS DOF Service shall provide a standards-based Interface Definition Language (IDL) and language mappings to at least C and C++ (limited) languages.
			C-CSS-01010	A	The CSS DOF provided IDL shall support versioning of the interface supporting minor and major versions.
			C-CSS-01020	A	The IDL supported minor versioning shall be upward compatible that requires no changes in the client software to communicate with the new implementation.
			C-CSS-01030	A	The CSS DOF Service shall support the passing of the general error status as a parameter in calls between the clients and servers automatically.
			C-CSS-01040	A	The CSS DOF Service shall provide the capability to marshal and unmarshal the arguments and the returned value transparently while making a remote procedure call.
			C-CSS-01050	A	The CSS DOF Service shall provide the capability to marshal and unmarshal standard types to/from a common standard format.
			C-CSS-01060	A	The CSS DOF Service shall provide the capability to define marshaling and unmarshaling routines for user defined types.
			C-CSS-01070	A	The CSS DOF Service shall provide server APIs to register/unregister services in the namespaces (in different administrative domains) under different views (server/group/profile).
			C-CSS-01080	A	The CSS DOF Service shall provide server APIs to register/unregister different implementations of an interface in the namespace.
			C-CSS-01090	A	The CSS DOF Service shall provide server APIs to register/unregister individual objects implementing an interface in the namespace.
			C-CSS-01100	A	The CSS DOF Service shall provide server APIs to register their services using different protocols in the namespace.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01110	A	The CSS DOF Service shall provide server APIs to register their services with the local endpoint mapper with the proper port number.
			C-CSS-01120	A	The CSS DOF Service shall provide mechanisms to shutdown a service gracefully, by allowing the servers to unregister the server information from the namespace.
			C-CSS-01130	A	The CSS DOF Service shall provide server APIs to limit the maximum number of threads to use in servicing the requests concurrently.
			C-CSS-01140	A	The CSS DOF Service shall provide client APIs to bind to services (registered in the local namespace as well as remote namespaces) by using any of the following information to achieve location transparency of services. a. a service name b. an interface name c. an object name d. a host name and communication protocol e. an object reference
			C-CSS-01150	A	The CSS DOF Service shall return gracefully by throwing an exception or returning an error code when it can not retrieve the binding information or can not resolve a binding.
			C-CSS-01160	A	The CSS DOF Service shall provide client APIs to specify a confidence level of the binding information as follows: a. a low confidence level indicating the use of a local cache to obtain binding information b. a medium confidence level indicating the DOF to get the binding information from any of the directory replicas. c. a high confidence level indicating the DOF to get the binding information from the master copy of the directory services.
			C-CSS-01170	A	The CSS DOF Service shall provide APIs to set/get the authentication service type to be used between the server and the client.
			C-CSS-01180	A	The CSS DOF Service shall provide APIs to set/get authorization service type to be used between the client and the server.
			C-CSS-01190	A	The CSS DOF Service shall provide APIs to maintain the integrity of the data to be passed between the client and the server.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01200	A	The CSS DOF Service shall provide APIs to maintain the privacy of the data passed between the client and the server by encrypting and decrypting the data.
			C-CSS-01210	A	The CSS DOF Service shall provide APIs to set the identity of a given principal to a given process.
			C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
			C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-ISS-01090	A	The ISS shall provide for local or metro area connectivity between V0 network nodes and V1 network nodes at GSFC, LaRC and MSFC DAAC sites in order to provide interoperability between the systems.
			C-ISS-01120	A	The ISS shall provide for connectivity to the MSFC campus network to enable transfer of data between SCF(s) located at MSFC and the MSFC DAAC.
			C-ISS-01130	A	The ISS shall provide for connectivity to the LaRC campus network to enable transfer of data between SCF(s) located at LaRC and the LaRC DAAC.
			C-ISS-01140	A	The ISS shall provide for connectivity to the GSFC campus network to enable transfer of data between SCF(s) located at GSFC and the GSFC DAAC.
			C-ISS-01150	A	The ISS shall provide for connectivity between the Landsat system and the EDC DAAC to support the ingest of Landsat data.
			C-ISS-01190	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between EOC components (in support of FOS interface testing at Release A).
			C-ISS-01220	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the GSFC DAAC.
			C-ISS-01230	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the LaRC DAAC.
			C-ISS-01240	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the EDC DAAC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01250	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between SDPS components at the MSFC DAAC.
			C-HRD-36065	A	The ISS shall reuse the existing V0 DAAC LAN at EDC for Release A.
			C-ISS-01255	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the GSFC DAAC.
			C-ISS-01260	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the SMC.
			C-ISS-01270	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the GSFC DAAC.
			C-ISS-01280	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the EOC.
			C-ISS-01290	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the FOS EOC components and the CSMS-provided LSM within the EOC.
			C-ISS-01300	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the CSMS and the SDPS components at the MSFC DAAC.
			C-ISS-01310	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the MSFC DAAC.
			C-ISS-01330	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the LaRC DAAC.
			C-ISS-01340	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS and SDPS components at the LaRC DAAC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. roter not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01256	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between the CSMS components at the EDC DAAC.
			C-CSS-60600	IR1	The CSS File Access Service shall provide connection oriented operation for file transfers.
			C-CSS-60620	IR1	The CSS File Access Service shall support proxy mode of operation which enables transfer of files between two remote hosts.
			C-CSS-60630	IR1	The CSS File Access Service shall provide capability to list remote files
			C-CSS-60640	IR1	The CSS File Access Service shall support wildcards in files on the remote host.
			C-CSS-61050	IR1	The CSS Electronic Mail Service shall be accessible in interactive mode.
			C-CSS-61060	IR1	The CSS Electronic Mail Service shall be accessible in non-interactive mode via API.
			C-CSS-62000	IR1	The CSS Bulletin Board Service shall be based on the following standards: a. TCP/IP b. NNTP c. SMTP d. Usenet message standard (RFC 850)
			C-CSS-62010	IR1	The CSS Bulletin Board Service shall support multiple (configurable) bulletin boards (newsgroups).
			C-CSS-62030	IR1	The CSS Bulletin Board Service shall provide concurrent access to multiple users (registered or non-registered).
			C-CSS-62040	IR1	The CSS Bulletin Board Service shall allow multiple messages for each bulletin board.
			C-CSS-62100	IR1	The CSS Bulletin Board Service shall provide capabilities to authorized users (M&O staff) for: a. creating new bulletin board b. deleting existing bulletin board c. deleting message(s) from a bulletin board d. backing up bulletin boards e. forcing users off a bulletin board or the entire bulletin board service for backup f. collecting access history and/or statistical information. g. backing up bulletin boards.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62120	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a posted message on a bulletin board by sending the response message to: a. the bulletin board (follow up) b. author of the original message (respond to author) c. named destinations (forward).
			C-CSS-62300	IR1	The CSS Bulletin Board Service shall be available to the users in interactive mode.
			C-CSS-62305	IR1	The CSS Bulletin Board Service shall allow user to subscribe to bulletin boards.
			C-CSS-62310	IR1	The CSS Bulletin Board Service shall allow user to unsubscribe bulletin boards.
			C-CSS-62320	IR1	The CSS Bulletin Board Service shall allow user to select a subscribed bulletin board for viewing summary of all messages in it.
			C-CSS-62330	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a message by sending the response to the bulletin board and/or to the author of the message and/or any other operator specified destination.
			C-CSS-62340	IR1	The CSS Bulletin Board Service shall provide capability: a. to search for a string in message headers or in message text. b. to search by author c. to search by subject.
			C-CSS-62350	IR1	The CSS Bulletin Board Service shall provide a catch-up feature which excludes user specified messages from appearing in the bulletin board when it is viewed next time.
			C-CSS-62360	IR1	The CSS Bulletin Board Service shall allow the users to post messages to bulletin board(s).
			C-CSS-62380	IR1	The CSS Bulletin Board Service shall allow users to copy/save a message to their local system.
			C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-10410	IR1	The MSS shall interface with the CSS subsystems to exchange the data items in Table 5.1-5 as specified in the ECS internal ICDs, 313-DV3-003.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
			C-ISS-01170	A	The ISS shall provide for connectivity between the EOC and EBnet for AM-1 interface testing.
			C-ISS-01180	A	The ISS shall provide for connectivity between the EOC and EBnet for AM-1 interface testing of EOC/IST communications.
ESN-0010#B	ESN shall provide the following standard services: a. Data Transfer and Management Services b. Electronic Messaging Service c. Remote Terminal Service d. Process to Process Communication Service e. Directory and User Access Control Service f. Network Management Service g. Network Security and Access Control Service h. Internetwork Interface Services i. Bulletin Board Service		C-MSS-16010	A	MSS Monitor/Control Service shall communicate via ECS management protocol with the Management Agent Service in test or operational mode.
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-70110	A	The MSS site Security Management Application Service shall provide the capability to specify privileges for authorized users and user groups for access to ECS resources.
			C-CSS-61840	A	The CSS Electronic Mail Service shall be capable of sending a message to multiple destinations.
			C-CSS-63060	A	The CSS Virtual Terminal shall support X applications.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-CSS-61290	A	The CSS Electronic Mail Service shall provide functionality to send reply for a received message to a. the author b. to all destinations addressed in the incoming message MailTool

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-61310	A	The CSS Electronic Mail Service shall provide a MAILBOX where all incoming messages for operators will be stored.
			C-CSS-61320	A	The CSS Electronic Mail Service shall provide operator defined folders to store messages for long term archive.
			C-CSS-61330	A	The CSS Electronic Mail Service shall allow copying and/or moving messages from the MAILBOX to the operator specified folders.
			C-CSS-61360	A	The CSS Electronic Mail Service shall be capable of showing a summary of all messages in the MAILBOX or in a folder which minimally contains: a. title/subject of the message b. name of the author c. date/time of the message origination
			C-CSS-61370	A	The CSS Electronic Mail Service shall provide an editor to compose a message.
			C-CSS-61380	A	The CSS Electronic Mail Service shall provide a title/subject field for a message.
			C-CSS-61390	A	The CSS Electronic Mail Service shall allow a message to be sent to multiple destinations.
			C-CSS-61400	A	The CSS Electronic Mail Service shall allow destinations of the following types: a. a single user b. a position which may be managed by one or many operators c. a site which may consists of several operators.
			C-CSS-61410	A	The CSS Electronic Mail Service shall provide a capability to maintain public mailing lists (each list may contain multiple destination) which are accessible to all operators.
			C-CSS-61420	A	The CSS Electronic Mail Service shall provide a capability to maintain private mailing lists (each list may contain multiple destination) for individual operators.
			C-CSS-61430	A	The CSS Electronic Mail Service shall allow attaching either text or binary files to a message.
			C-CSS-61440	A	The CSS Electronic Mail Service shall allow discarding message(s) from the MAILBOX without saving.
			C-CSS-61450	A	The CSS Electronic Mail Service shall have the capability to forward a message.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-61460	A	The CSS Electronic Mail Service shall allow cut/copy/paste/delete/undo operations in the editor.
			C-CSS-61470	A	The CSS Electronic Mail Service shall provide navigation methods to go the next or previous message in the MAILBOX or selected folder.
			C-CSS-61490	A	The CSS Electronic Mail Service shall provide the capability to search for keywords in messages.
			C-CSS-61500	A	The CSS Electronic Mail Service shall provide the capability to search the MAILBOX or a folder for keywords in title text.
			C-CSS-61510	A	The CSS Electronic Mail Service shall provide the capability to search the MAILBOX or folders for a specific author.
			C-CSS-61520	A	The CSS Electronic Mail Service shall accept mailing lists as valid destinations.
			C-CSS-61800	A	The CSS Electronic Mail Service shall provide the capability to send an electronic mail message non-interactively from an application.
			C-CSS-61810	A	The CSS Electronic Mail Service shall allow attaching multiple text or binary files to the mail message.
			C-CSS-61820	A	The CSS Electronic Mail Service shall accept a file name as input for the message text.
			C-CSS-61850	A	The CSS Electronic Mail Service shall accept mailing lists as valid destinations.
			C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
			C-CSS-60900	A	The CSS File Access Service shall provide an API which allows applications to transfer files.
			C-CSS-60910	A	The CSS File Access Service shall allow for file type selection (ASCII or Binary).
			C-CSS-60920	A	The CSS File Access Service shall accept authentication information for file transfers.
			C-CSS-62050	A	The CSS Bulletin Board Service shall host the user registration service.
			C-CSS-62060	A	The CSS Bulletin Board Service shall provide the capability for copying files.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62070	A	The CSS Bulletin Board Service shall support download of ECS toolkits.
			C-CSS-62080	A	The CSS Bulletin Board Service shall collect and maintain access history and statistical information for the service.
			C-CSS-62130	A	The CSS Bulletin Board Service shall provide a "What's new" feature which informs the user of the new information available on the bulletin boards.
			C-CSS-62390	A	The CSS Bulletin Board Service shall allow attaching ASCII or binary files to a message.
			C-CSS-62800	A	The CSS Bulletin Board Service shall interface for the applications to post a message to bulletin boards.
			C-CSS-62810	A	The CSS Bulletin Board Service shall allow attaching ASCII and binary files to a message.
			C-CSS-62820	A	The CSS Bulletin Board Service shall allow a message to be posted to multiple bulletin boards.
			C-CSS-01000	A	The CSS DOF Service shall provide a standards-based Interface Definition Language (IDL) and language mappings to at least C and C++ (limited) languages.
			C-CSS-01010	A	The CSS DOF provided IDL shall support versioning of the interface supporting minor and major versions.
			C-CSS-01020	A	The IDL supported minor versioning shall be upward compatible that requires no changes in the client software to communicate with the new implementation.
			C-CSS-01030	A	The CSS DOF Service shall support the passing of the general error status as a parameter in calls between the clients and servers automatically.
			C-CSS-01040	A	The CSS DOF Service shall provide the capability to marshal and unmarshal the arguments and the returned value transparently while making a remote procedure call.
			C-CSS-01050	A	The CSS DOF Service shall provide the capability to marshal and unmarshal standard types to/from a common standard format.
			C-CSS-01060	A	The CSS DOF Service shall provide the capability to define marshaling and unmarshaling routines for user defined types.
			C-CSS-01070	A	The CSS DOF Service shall provide server APIs to register/unregister services in the namespaces (in different administrative domains) under different views (server/group/profile).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01080	A	The CSS DOF Service shall provide server APIs to register/unregister different implementations of an interface in the namespace.
			C-CSS-01090	A	The CSS DOF Service shall provide server APIs to register/unregister individual objects implementing an interface in the namespace.
			C-CSS-01100	A	The CSS DOF Service shall provide server APIs to register their services using different protocols in the namespace.
			C-CSS-01110	A	The CSS DOF Service shall provide server APIs to register their services with the local endpoint mapper with the proper port number.
			C-CSS-01120	A	The CSS DOF Service shall provide mechanisms to shutdown a service gracefully, by allowing the servers to unregister the server information from the namespace.
			C-CSS-01130	A	The CSS DOF Service shall provide server APIs to limit the maximum number of threads to use in servicing the requests concurrently.
			C-CSS-01140	A	The CSS DOF Service shall provide client APIs to bind to services (registered in the local namespace as well as remote namespaces) by using any of the following information to achieve location transparency of services. a. a service name b. an interface name c. an object name d. a host name and communication protocol e. an object reference
			C-CSS-01150	A	The CSS DOF Service shall return gracefully by throwing an exception or returning an error code when it can not retrieve the binding information or can not resolve a binding.
			C-CSS-01160	A	The CSS DOF Service shall provide client APIs to specify a confidence level of the binding information as follows: a. a low confidence level indicating the use of a local cache to obtain binding information b. a medium confidence level indicating the DOF to get the binding information from any of the directory replicas. c. a high confidence level indicating the DOF to get the binding information from the master copy of the directory services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01170	A	The CSS DOF Service shall provide APIs to set/get the authentication service type to be used between the server and the client.
			C-CSS-01180	A	The CSS DOF Service shall provide APIs to set/get authorization service type to be used between the client and the server.
			C-CSS-01190	A	The CSS DOF Service shall provide APIs to maintain the integrity of the data to be passed between the client and the server.
			C-CSS-01200	A	The CSS DOF Service shall provide APIs to maintain the privacy of the data passed between the client and the server by encrypting and decrypting the data.
			C-CSS-01210	A	The CSS DOF Service shall provide APIs to set the identity of a given principal to a given process.
			C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
			C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-ISS-01120	A	The ISS shall provide for connectivity to the MSFC campus network to enable transfer of data between SCF(s) located at MSFC and the MSFC DAAC.
			C-ISS-01130	A	The ISS shall provide for connectivity to the LaRC campus network to enable transfer of data between SCF(s) located at LaRC and the LaRC DAAC.
			C-ISS-01140	A	The ISS shall provide for connectivity to the GSFC campus network to enable transfer of data between SCF(s) located at GSFC and the GSFC DAAC.
			C-ISS-01150	A	The ISS shall provide for connectivity between the Landsat system and the EDC DAAC to support the ingest of Landsat data.
			C-ISS-01190	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between EOC components (in support of FOS interface testing at Release A).
			C-ISS-01270	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the GSFC DAAC.
			C-ISS-01280	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the EOC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-ISS-01256	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between the CSMS components at the EDC DAAC.
			C-CSS-01250	B	The CSS DOF Service shall provide cell namespace aliasing for the directory service to permit administrative ease of changes.
			C-CSS-01270	B	The CSS Security Service shall provide for distributed file service delegation that permits a file to be passed with its corresponding directory service namespace structure.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01230	B	The CSS Security Service shall provide security delegation to allow an intermediary server to operate on behalf of an initiating client while preserving both client's and server's identities and access control attributes across chained operations.
			C-CSS-10510	B	The CSS DCCI shall accept email service request from the User.
			C-CSS-10550	B	The CSS DCCI shall provide email service to the User.
			C-CSS-10610	B	The CSS DCCI shall accept Common facilities request from CLS
			C-CSS-10630	B	The CSS DCCI shall provide Common facilities to CLS.
			C-CSS-10650	B	The CSS DCCI shall accept Common facilities request from IOS.
			C-CSS-10670	B	The CSS DCCI shall provide Common facilities to IOS.
			C-CSS-10690	B	The CSS DCCI shall accept Common facilities request from DMS.
			C-CSS-10710	B	The CSS DCCI shall provide Common facilities to DMS.
			C-CSS-10720	B	The CSS DCCI shall accept Common facilities request from DSS.
			C-CSS-10730	B	The CSS DCCI shall provide Common facilities to DSS.
			C-CSS-10740	B	The CSS DCCI shall accept Common facilities request from INS.
			C-CSS-10750	B	The CSS DCCI shall provide Common facilities to INS.
			C-CSS-10760	B	The CSS DCCI shall accept Common facilities request from DPS.
			C-CSS-10770	B	The CSS DCCI shall provide Common facilities to DPS.
			C-CSS-10780	B	The CSS DCCI shall accept Common facilities request from PLS.
			C-CSS-10790	B	The CSS DCCI shall provide Common facilities to PLS.
			C-CSS-10800	B	The CSS DCCI shall accept Common facilities request from MSS.
			C-CSS-10830	B	The CSS DCCI shall provide Common facilities to MSS.
			C-CSS-29020	B	The CSS Transaction Processing Service shall support the management of OODCE-based servers.
			C-CSS-29040	B	The CSS Transaction Processing Service shall provide load balancing for OODCE-based servers.
			C-CSS-60330	B	The CSS File Access Service shall provide uninterrupted file access in the event of single failure of the server.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-60340	B	The CSS File Access Service shall guarantee the accessed file to be in its most recent version.
			C-CSS-60350	B	The CSS File Access Service shall provide capability to change directory (cd) on the remote host.
			C-CSS-61397	B	The CSS Electronic Mail Service shall provide on-line help functionality.
			C-CSS-62317	B	The CSS Bulletin Board Service shall provide on-line help functionality.
			C-CSS-64000	B	The CSS Dial-Up Access Service shall provide remote Internet access.
			C-ISS-11090	B	The ISS shall provide for local or metro area connectivity to V0 network nodes at the GSFC, LaRC, MSFC, JPL, ASF, and NSIDC DAAC sites in order to provide interoperability between ECS and V0.
			C-ISS-11170	B	The ISS shall provide for connectivity between the EOC and EBnet.
			C-ISS-11180	B	The ISS shall provide for connectivity between the EOC and NSI for EOC/IST communications.
			C-ISS-11220	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the GSFC DAAC.
			C-ISS-11230	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the LaRC DAAC.
			C-ISS-11240	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the EDC DAAC.
			C-ISS-11250	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the MSFC DAAC.
			C-ISS-20000	B	The ISS shall provide LANs at the following Release B sites: a. GSFC DAAC; b. GSFC EOC; c. EDC DAAC; d. LaRC DAAC; e. MSFC DAAC; f. GSFC SMC; g. JPL DAAC; h. ASF DAAC; i. ORNL DAAC; j. NSIDC DAAC
			C-ISS-20050	B	The ISS shall provide sufficient local area network bandwidth at the JPL DAAC to support data transfer between and among physical nodes provided in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-20060	B	The ISS shall provide sufficient local area network bandwidth at the ASF DAAC to support data transfer between and among physical nodes in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20070	B	The ISS shall provide sufficient local area network bandwidth at the ORNL DAAC to support data transfer between and among physical nodes in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20080	B	The ISS shall provide sufficient local area network bandwidth at the NSIDC DAAC to support data transfer between and among physical nodes in accordance with the Release B network sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20120	B	The ISS shall provide for connectivity between the EOC and EBnet for AM-1 instrument flight operations.
			C-ISS-20130	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the JPL DAAC.
			C-ISS-20140	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the ASF DAAC.
			C-ISS-20150	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the ORNL DAAC.
			C-ISS-20160	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the NSIDC DAAC.
			C-ISS-20170	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the GSFC EOC.
			C-ISS-21010	B	The ISS-INHW CI shall provide LANs at the following sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN
			C-MSS-18360	B	The MSS Management Data Access Service shall provide the capability for the M&O staff to load log files into the management database at the site.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66001	B	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways b. hosts c. operating systems d. peripherals e. data f. ECS applications.
			C-CSS-60600	IR1	The CSS File Access Service shall provide connection oriented operation for file transfers.
			C-CSS-60620	IR1	The CSS File Access Service shall support proxy mode of operation which enables transfer of files between two remote hosts.
			C-CSS-60630	IR1	The CSS File Access Service shall provide capability to list remote files
			C-CSS-60640	IR1	The CSS File Access Service shall support wildcards in files on the remote host.
			C-CSS-61050	IR1	The CSS Electronic Mail Service shall be accessible in interactive mode.
			C-CSS-61060	IR1	The CSS Electronic Mail Service shall be accessible in non-interactive mode via API.
			C-CSS-62000	IR1	The CSS Bulletin Board Service shall be based on the following standards: a. TCP/IP b. NNTP c. SMTP d. Usenet message standard (RFC 850)
			C-CSS-62010	IR1	The CSS Bulletin Board Service shall support multiple (configurable) bulletin boards (newsgroups).
			C-CSS-62030	IR1	The CSS Bulletin Board Service shall provide concurrent access to multiple users (registered or non-registered).
			C-CSS-62040	IR1	The CSS Bulletin Board Service shall allow multiple messages for each bulletin board.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62100	IR1	The CSS Bulletin Board Service shall provide capabilities to authorized users (M&O staff) for: a. creating new bulletin board b. deleting existing bulletin board c. deleting message(s) from a bulletin board d. backing up bulletin boards e. forcing users off a bulletin board or the entire bulletin board service for backup f. collecting access history and/or statistical information. g. backing up bulletin boards.
			C-CSS-62120	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a posted message on a bulletin board by sending the response message to: a. the bulletin board (follow up) b. author of the original message (respond to author) c. named destinations (forward).
			C-CSS-62300	IR1	The CSS Bulletin Board Service shall be available to the users in interactive mode.
			C-CSS-62305	IR1	The CSS Bulletin Board Service shall allow user to subscribe to bulletin boards.
			C-CSS-62310	IR1	The CSS Bulletin Board Service shall allow user to unsubscribe bulletin boards.
			C-CSS-62320	IR1	The CSS Bulletin Board Service shall allow user to select a subscribed bulletin board for viewing summary of all messages in it.
			C-CSS-62330	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a message by sending the response to the bulletin board and/or to the author of the message and/or any other operator specified destination.
			C-CSS-62340	IR1	The CSS Bulletin Board Service shall provide capability: a. to search for a string in message headers or in message text. b. to search by author c. to search by subject.
			C-CSS-62350	IR1	The CSS Bulletin Board Service shall provide a catch-up feature which excludes user specified messages from appearing in the bulletin board when it is viewed next time.
			C-CSS-62360	IR1	The CSS Bulletin Board Service shall allow the users to post messages to bulletin board(s).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62380	IR1	The CSS Bulletin Board Service shall allow users to copy/save a message to their local system.
			C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : <ul style="list-style-type: none"> a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: <ul style="list-style-type: none"> 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
			C-ISS-20110	B	The ISS shall provide for connectivity to the ASF campus network to enable transfer of data between the ASF DAAC and the ASF production systems associated with ERS-1/2, JERS-1, and RADARSAT.
ESN-0010#Ir1	ESN shall provide the following standard services: <ul style="list-style-type: none"> a. Data Transfer and Management Services b. Electronic Messaging Service c. Remote Terminal Service d. Process to Process Communication Service e. Directory and User Access Control Service f. Network Management Service g. Network Security and Access Control Service h. Internetwork Interface Services 	IR1: a through: h a. ftp, etc. b. mail c. telnet d. internal within a site.	C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			S-INS-00040	IR1	The INGST CI shall report status to the provider of a Network Ingest Request and to the Error Log indicating successful or unsuccessful authentication of the provider as authorized to submit the request.
			C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways
			C-CSS-61050	IR1	The CSS Electronic Mail Service shall be accessible in interactive mode.
			C-CSS-61060	IR1	The CSS Electronic Mail Service shall be accessible in non-interactive mode via API.
			C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-10410	IR1	The MSS shall interface with the CSS subsystems to exchange the data items in Table 5.1-5 as specified in the ECS internal ICDs, 313-DV3-003.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
ESN-0070#A	The ESN shall support the elements data flow requirements identified in this specification.		C-MSS-16010	A	MSS Monitor/Control Service shall communicate via ECS management protocol with the Management Agent Service in test or operational mode.
			C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-CSS-10100	A	The CSS shall interface with the SDPS subsystems to exchange the data items in Table 6-1 as specified in the ECS internal ICDs, 313-DV3-003.
			C-CSS-10200	A	The CSS shall interface with the FOS subsystems to exchange the data items in Table 6-2 as specified in the ECS internal ICDs, 313-DV3-003.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-10300	A	The CSS shall interface with the MSS subsystems to exchange the data items in Table 6-3 as specified in the ECS internal ICDs, 313-DV3-003.
			C-CSS-10400	A	The CSS shall interface with the ISS subsystems to exchange the data items in Table 6-4 as specified in the ECS internal ICDs, 313-DV3-003.
			C-ISS-01120	A	The ISS shall provide for connectivity to the MSFC campus network to enable transfer of data between SCF(s) located at MSFC and the MSFC DAAC.
			C-ISS-01130	A	The ISS shall provide for connectivity to the LaRC campus network to enable transfer of data between SCF(s) located at LaRC and the LaRC DAAC.
			C-ISS-01140	A	The ISS shall provide for connectivity to the GSFC campus network to enable transfer of data between SCF(s) located at GSFC and the GSFC DAAC.
			C-ISS-01150	A	The ISS shall provide for connectivity between the Landsat system and the EDC DAAC to support the ingest of Landsat data.
			C-ISS-01190	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between EOC components (in support of FOS interface testing at Release A).
			C-ISS-01200	A	The topology of the EOC LANs shall not inhibit the reconfiguration of FOS devices to support either operational or support functions.
			C-ISS-01220	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the GSFC DAAC.
			C-ISS-01230	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the LaRC DAAC.
			C-ISS-01240	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the EDC DAAC.
			C-ISS-01250	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e.. from the physical to the transport layer) services between SDPS components at the MSFC DAAC.
			C-ISS-02510	A	The EOC LANs shall be capable of supporting multicasting.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-HRD-36065	A	The ISS shall reuse the existing V0 DAAC LAN at EDC for Release A.
			C-ISS-01255	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the GSFC DAAC.
			C-ISS-01260	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the SMC.
			C-ISS-01270	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the GSFC DAAC.
			C-ISS-01280	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the EOC.
			C-ISS-01290	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the FOS EOC components and the CSMS-provided LSM within the EOC.
			C-ISS-01300	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the CSMS and the SDPS components at the MSFC DAAC.
			C-ISS-01310	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the MSFC DAAC.
			C-ISS-01330	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS components at the LaRC DAAC.
			C-ISS-01340	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between CSMS and SDPS components at the LaRC DAAC.
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-ISS-01256	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between the CSMS components at the EDC DAAC.
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-HRD-36030	A	The ISS shall provide sufficient local area network bandwidth at the LaRC DAAC to support data transfer between and among physical nodes provided by SDPS, MSS and CSS in accordance with the Release A network I/O sizing listed in Appendix A of the current version of 304-CD-003.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-HRD-36040	A	The ISS shall provide sufficient local area network bandwidth at the MSFC DAAC to support data transfer between and among physical nodes provided by SDPS, MSS and CSS in accordance with the Release A network I/O sizing listed in Appendix A of the current version of 304-CD-003.
			C-HRD-36050	A	The ISS shall provide sufficient local area network bandwidth at the GSFC DAAC to support data transfer between and among physical nodes provided by SDPS, MSS and CSS in accordance with the Release A network I/O sizing listed in Appendix A of the current version of 304-CD-003.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-ISS-01100	IR1	The ISS shall provide for connectivity with TSDIS in order to transfer TRMM data to the GSFC DAAC.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
			C-ISS-01110	A	The ISS shall provide for connectivity with TSDIS in order to transfer TRMM data to the MSFC DAAC via the EBnet.
			C-ISS-01170	A	The ISS shall provide for connectivity between the EOC and EBnet for AM-1 interface testing.
			C-ISS-01180	A	The ISS shall provide for connectivity between the EOC and EBnet for AM-1 interface testing of EOC/IST communications.
ESN-0070#B	The ESN shall support the elements data flow requirements identified in this specification.		C-MSS-16010	A	MSS Monitor/Control Service shall communicate via ECS management protocol with the Management Agent Service in test or operational mode.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-CSS-10100	A	The CSS shall interface with the SDPS subsystems to exchange the data items in Table 6-1 as specified in the ECS internal ICDs, 313-DV3-003.
			C-CSS-10200	A	The CSS shall interface with the FOS subsystems to exchange the data items in Table 6-2 as specified in the ECS internal ICDs, 313-DV3-003.
			C-CSS-10300	A	The CSS shall interface with the MSS subsystems to exchange the data items in Table 6-3 as specified in the ECS internal ICDs, 313-DV3-003.
			C-CSS-10400	A	The CSS shall interface with the ISS subsystems to exchange the data items in Table 6-4 as specified in the ECS internal ICDs, 313-DV3-003.
			C-ISS-01120	A	The ISS shall provide for connectivity to the MSFC campus network to enable transfer of data between SCF(s) located at MSFC and the MSFC DAAC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01130	A	The ISS shall provide for connectivity to the LaRC campus network to enable transfer of data between SCF(s) located at LaRC and the LaRC DAAC.
			C-ISS-01140	A	The ISS shall provide for connectivity to the GSFC campus network to enable transfer of data between SCF(s) located at GSFC and the GSFC DAAC.
			C-ISS-01150	A	The ISS shall provide for connectivity between the Landsat system and the EDC DAAC to support the ingest of Landsat data.
			C-ISS-01190	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between EOC components (in support of FOS interface testing at Release A).
			C-ISS-01200	A	The topology of the EOC LANs shall not inhibit the reconfiguration of FOS devices to support either operational or support functions.
			C-ISS-02510	A	The EOC LANs shall be capable of supporting multicasting.
			C-ISS-01270	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the GSFC DAAC.
			C-ISS-01280	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between the SMC and the EOC.
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: <ul style="list-style-type: none"> a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-ISS-01256	A	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 services between the CSMS components at the EDC DAAC.
			C-CSS-10880	B	The CSS DCCI shall have the capability to send resource utilization data to MSS.
			C-ISS-02340	B	The ISS-INHW CI shall provide sufficient local area network bandwidth at the MSFC DAAC to support data transfer between and among physical nodes provided by SDPS, MSS and CSS in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-02370	B	The ISS-INHW CI shall reuse the existing V0 DAAC LAN at EDC for Release A.
			C-ISS-11170	B	The ISS shall provide for connectivity between the EOC and EBnet.
			C-ISS-11180	B	The ISS shall provide for connectivity between the EOC and NSI for EOC/IST communications.
			C-ISS-11220	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the GSFC DAAC.
			C-ISS-11230	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the LaRC DAAC.
			C-ISS-11240	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the EDC DAAC.
			C-ISS-11250	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the MSFC DAAC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-11260	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services between components at the SMC.
			C-ISS-20000	B	The ISS shall provide LANs at the following Release B sites: a. GSFC DAAC; b. GSFC EOC; c. EDC DAAC; d. LaRC DAAC; e. MSFC DAAC; f. GSFC SMC; g. JPL DAAC; h. ASF DAAC; i. ORNL DAAC; j. NSIDC DAAC
			C-ISS-20050	B	The ISS shall provide sufficient local area network bandwidth at the JPL DAAC to support data transfer between and among physical nodes provided in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20060	B	The ISS shall provide sufficient local area network bandwidth at the ASF DAAC to support data transfer between and among physical nodes in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20070	B	The ISS shall provide sufficient local area network bandwidth at the ORNL DAAC to support data transfer between and among physical nodes in accordance with the Release B network I/O sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20080	B	The ISS shall provide sufficient local area network bandwidth at the NSIDC DAAC to support data transfer between and among physical nodes in accordance with the Release B network sizing listed in Appendix A of the current version of 304-CD-005.
			C-ISS-20130	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the JPL DAAC.
			C-ISS-20140	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the ASF DAAC.
			C-ISS-20150	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the ORNL DAAC.
			C-ISS-20160	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the NSIDC DAAC.
			C-ISS-20170	B	The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the GSFC EOC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-18360	B	The MSS Management Data Access Service shall provide the capability for the M&O staff to load log files into the management database at the site.
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-ISS-01100	IR1	The ISS shall provide for connectivity with TSDIS in order to transfer TRMM data to the GSFC DAAC.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
			C-ISS-20110	B	The ISS shall provide for connectivity to the ASF campus network to enable transfer of data between the ASF DAAC and the ASF production systems associated with ERS-1/2, JERS-1, and RADARSAT.
ESN-0070#Ir1	The ESN shall support the elements data flow requirements identified in this specification.		C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-ISS-01010	IR1	The ISS shall provide an interface between the V0 WAN and the MSFC, LaRC and GSFC DAACs for the purpose of IR-1 interface testing.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-ISS-01030	IR1	The ISS shall provide for connectivity between the MSFC DAAC and EBnet for the ingest of L0 LIS data.
			C-ISS-01040	IR1	The ISS shall provide for connectivity between the LaRC DAAC and EBnet for the ingest of L0 CERES data.
ESN-0080#A	The ESN shall provide internal communications interfaces to GFE circuits provided by PSCN which link to: a. Specified ADCs b. Selected SCFs c. Selected EPDSs (Landsat-7, TRMM) d. Selected ISTs	TRMM, AM-1	C-HRD-36020	A	The ISS shall provide wide area bandwidth necessary to support data transfer in accordance with Release A requirements specified in "Communications Requirements for the ECS Project", 194-220-SE3-001.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-01080	IR1	The ISS shall reuse the V0 WAN in order to provide connectivity between V0 network nodes and V1 network nodes and to provide interoperability between the systems.
			C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
ESN-0080#B	The ESN shall provide internal communications interfaces to GFE circuits provided by PSCN which link to: a. Specified ADCs b. Selected SCFs c. Selected EPDSs (Landsat-7, TRMM) d. Selected ISTs	TRMM, AM-1	C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
ESN-0180#A	The ESN shall connect with the International partners designated pickup points.		C-ISS-01185	A	The ISS shall provide for connectivity to the designated international partner (IP) pickup point for ASTER.
ESN-0180#B	The ESN shall connect with the International partners designated pickup points.		C-ISS-01185	A	The ISS shall provide for connectivity to the designated international partner (IP) pickup point for ASTER.
ESN-0210#A	The ESN management function shall have a capability to obtain status on specific data flows such as expedited data products, to assure the successful operation of ESN.		C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0210#B	The ESN management function shall have a capability to obtain status on specific data flows such as expedited data products to assure the successful operation of ESN.		C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66001	B	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways b. hosts c. operating systems d. peripherals e. data f. ECS applications.
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0210#Ir1	The ESN management function shall have a capability to obtain status on specific data flows to assure the successful operation of ESN.		C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0240#A	The ESN shall be extensible in its design to provide capability for growth and enhancement.		C-MSS-00030	A	The MSS services shall be extensible in its design to provide capability for growth and enhancement.
			C-HRD-36070	A	The ISS LANs at the GSFC, MSFC and LaRC DAAC sites shall be capable of supporting twice the R-A network traffic load estimates without redesign.
			C-HRD-36080	A	The ISS LANs at the Release-A DAAC sites shall be designed in a manner that allows a. Nodes to be added to any given LAN segment. b. Additional LAN segments to be added to the LAN.
			C-CSS-00030	A	The CSS services shall be extensible in its design to provide capability for growth and enhancement.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0240#B	The ESN shall be extensible in its design to provide capability for growth and enhancement.		C-MSS-00030	A	The MSS services shall be extensible in its design to provide capability for growth and enhancement.
			C-ISS-02380	B	The ISS-INHW CI LANs at the GSFC, MSFC and LaRC DAAC sites shall be capable of supporting twice the R-A network traffic load estimates without redesign.
			C-ISS-20100	B	The ISS LANs shall be designed in a manner that allows a. Nodes to be added to any given LAN segment.; b. Additional LAN segments to be added to the LAN.
			C-CSS-00030	A	The CSS services shall be extensible in its design to provide capability for growth and enhancement.
ESN-0250#A	The ESN shall provide a help service to assist users with communication questions and problems.		C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
ESN-0250#B	The ESN shall provide a help service to assist users with communication questions and problems.		C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
ESN-0280#A	The ESN shall provide file transfer and management service and as a minimum shall include the capability to transfer the following data types: a. Unstructured Text b. Binary Unstructured c. Binary Sequential d. Sequential Text		C-CSS-60510	IR1	The CSS File Access Service shall be capable of transferring ASCII and binary files.
			C-CSS-60610	IR1	The CSS File Access Service shall allow selection of the file type (ASCII or binary).
ESN-0280#B	The ESN shall provide file transfer and management service and as a minimum shall include the capability to transfer the following data types: a. Unstructured Text b. Binary Unstructured c. Binary Sequential d. Sequential Text		C-CSS-60510	IR1	The CSS File Access Service shall be capable of transferring ASCII and binary files.
			C-CSS-60610	IR1	The CSS File Access Service shall allow selection of the file type (ASCII or binary).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0280#Ir1	The ESN shall provide file transfer and management service and as a minimum shall include the capability to transfer the following data types: a. Unstructured Text b. Binary Unstructured c. Binary Sequential d. Sequential Text		C-CSS-60510	IR1	The CSS File Access Service shall be capable of transferring ASCII and binary files.
			C-CSS-60610	IR1	The CSS File Access Service shall allow selection of the file type (ASCII or binary).
ESN-0290#A	The file transfer and management service shall be available in interactive and non-interactive services.		C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
			C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.
			C-CSS-60650	IR1	The CSS File Access service shall support anonymous FTP which allows read access to all users.
ESN-0290#B	The file transfer and management service shall be available in interactive and non-interactive services.		C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
			C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.
			C-CSS-60650	IR1	The CSS File Access service shall support anonymous FTP which allows read access to all users.
ESN-0290#Ir1	The file transfer and management service shall be available in interactive and non-interactive services.		C-CSS-60500	IR1	The CSS File Access Service shall provide functionality for interactive and non-interactive transfer of files (send and receive) between two host systems.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0300#A	The file transfer and management non-interactive services shall be able to be scheduled.		C-CSS-60800	A	The CSS File Access Service shall provide an option for scheduling file transfers in a batch mode.
			C-CSS-60810	A	The CSS File Access Service shall log results of the non-interactive operations to operator specified log files.
			C-CSS-60820	A	The CSS File Access Service shall provide an option to send alarms and generate events if a scheduled operation fails.
ESN-0300#B	The file transfer and management non-interactive services shall be able to be scheduled.		C-CSS-60800	A	The CSS File Access Service shall provide an option for scheduling file transfers in a batch mode.
			C-CSS-60810	A	The CSS File Access Service shall log results of the non-interactive operations to operator specified log files.
			C-CSS-60820	A	The CSS File Access Service shall provide an option to send alarms and generate events if a scheduled operation fails.
ESN-0340#A	The ESN shall interoperate and exchange messages and data with external SMTP and X.400 mail systems.		C-CSS-61010	A	The CSS Electronic Mail Service shall interoperate and exchange messages with external mail systems based on SMTP and X.400 protocols.
			C-CSS-61030	A	The CSS Electronic Mail Service shall use the existing X.400 gateway available at GSFC to support X.400 operations.
ESN-0340#B	The ESN shall interoperate and exchange messages and data with external SMTP and X.400 mail systems.		C-CSS-61010	A	The CSS Electronic Mail Service shall interoperate and exchange messages with external mail systems based on SMTP and X.400 protocols.
			C-CSS-61030	A	The CSS Electronic Mail Service shall use the existing X.400 gateway available at GSFC to support X.400 operations.
			C-CSS-61070	B	The CSS Electronic Mail Service shall support the Post Office Protocol (POP).
ESN-0345#A	The ESN shall be capable of transparently transmitting Multi-purpose Internet Mail Extensions (MIME) messages.		C-CSS-61020	A	The CSS Electronic Mail Service shall be capable of sending and receiving the Multi-purpose Internet Mail Extensions (MIME) messages.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0345#B	The ESN shall be capable of transparently transmitting Multi-purpose Internet Mail Extensions (MIME) messages.		C-CSS-61020	A	The CSS Electronic Mail Service shall be capable of sending and receiving the Multi-purpose Internet Mail Extensions (MIME) messages.
ESN-0350#A	The Electronic Messaging Service, shall be capable of exchanging binary data.		C-CSS-61430	A	The CSS Electronic Mail Service shall allow attaching either text or binary files to a message.
			C-CSS-61810	A	The CSS Electronic Mail Service shall allow attaching multiple text or binary files to the mail message.
			C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
ESN-0350#B	The Electronic Messaging Service, shall be capable of exchanging binary data.		C-CSS-61430	A	The CSS Electronic Mail Service shall allow attaching either text or binary files to a message.
			C-CSS-61810	A	The CSS Electronic Mail Service shall allow attaching multiple text or binary files to the mail message.
			C-CSS-60300	A	The CSS File Access Service shall provide transparent access to remote files.
			C-CSS-60310	A	The CSS File Access Service shall support access control for the remote files.
			C-CSS-60320	A	The CSS File Access Service shall provide location independent naming for the remote files.
ESN-0370#A	The ESN shall provide interactive virtual terminal services.		C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
ESN-0370#B	The ESN shall provide interactive virtual terminal services.		C-CSS-10540	B	The CSS DCCI shall provide virtual terminal service to the User.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
ESN-0370#Ir1	The ESN shall provide interactive virtual terminal services.	IR1: Total applicability.	C-CSS-63000	IR1	The CSS Virtual Terminal shall provide a virtual device which hides the physical terminal characteristics and handling conventions from both the operator and the server host.
			C-CSS-63010	IR1	The CSS Virtual Terminal shall provide means to enhance characteristics of the basic virtual device by mutual agreement between the two communicating parties (option negotiations).
			C-CSS-63020	IR1	The CSS Virtual Terminal shall be based on industry standard and accepted protocols (telnet and ktelnet).
			C-CSS-63040	IR1	The CSS Virtual Terminal shall provide guest access to non-registered users to log into the ECS guest server.
ESN-0450#A	The ESN shall provide process-to-process communication service.		C-CSS-22065	A	The CSS Message Service shall log event messages to the MSS management agents whenever the message service could not deliver a message to any receiver in the time period set by the sender of the message.
			C-CSS-22000	A	The CSS Message service shall provide an API for senders to send messages to receivers asynchronously without waiting for the receivers to receive it.
			C-CSS-22010	A	The CSS Message service shall provide an API for senders to send messages to receivers in a deferred synchronously manner through an intermediary where by they can contact the intermediary at a latter time to receive the result.
			C-CSS-22040	A	The CSS Message Service shall provide an API for the sender to designate multiple receivers for asynchronous messages.
			C-CSS-22050	A	The CSS Message Service shall support multiple message queues so different groups of processes can use different message queues.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-22060	A	The CSS Message Service shall purge a message from the message queue after a user specified time irrespective of its delivery to the receivers.
			C-CSS-22070	A	The CSS Message Service shall store undeliverable messages and retrieve and transmit them later.
			C-CSS-22090	A	The CSS Message Service shall provide the capability to locate and send (push model) the messages to receivers.
			C-CSS-22100	A	The CSS Message Service shall provide a non blocking API for the receiver to contact the message queue and get (pull model) the message.
			C-CSS-22110	A	The CSS Message service shall support guaranteed delivery of the message to the receiver.
			C-CSS-22120	A	The CSS Message service shall provide an API for the sender of the message to get the acknowledgment information the message service receives from the receivers.
			C-CSS-22130	A	The CSS Message service shall associate the receiver to a returned value and maintain that information locally until the sender requests that information.
			C-CSS-22140	A	The CSS Message Service shall provide an API for the sender of the message to receive return information stored at the message queue.
			C-CSS-22150	A	The CSS Message Service shall defer sending a message to a receiver, if the receiver is not active, and should try sending the message periodically with a set interval of time until the receiver is active.
			C-CSS-26010	A	The CSS Thread Service shall allow the option that each invocation of a server operation to run as a distinct thread.
			C-CSS-26020	A	The CSS Thread Service shall protect against conflicts between different threads accessing the same data.
			C-CSS-26030	A	The CSS Thread Service shall take into account the possibility that other threads may change shared data at any point. Code that will function correctly when executed by multiple concurrent threads is called thread-safe.
			C-CSS-26040	A	The CSS Thread Service shall provide an API that synchronizes the access of shared data between concurrent threads.
			C-CSS-26050	A	The CSS Thread Service shall provide a synchronizing object that is in one of two states: locked or unlocked.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-26060	A	The CSS Thread Service shall provide an API that allows each thread to lock the synchronizing object before it accesses the shared data.
			C-CSS-26070	A	The CSS Thread Service shall provide an API that allows each thread to unlock the synchronizing object when it is finished accessing that data.
			C-CSS-26080	A	The CSS Thread Service shall if the synchronizing object is locked by another thread, block the thread requesting the lock.
			C-CSS-01000	A	The CSS DOF Service shall provide a standards-based Interface Definition Language (IDL) and language mappings to at least C and C++ (limited) languages.
			C-CSS-01010	A	The CSS DOF provided IDL shall support versioning of the interface supporting minor and major versions.
			C-CSS-01020	A	The IDL supported minor versioning shall be upward compatible that requires no changes in the client software to communicate with the new implementation.
			C-CSS-01030	A	The CSS DOF Service shall support the passing of the general error status as a parameter in calls between the clients and servers automatically.
			C-CSS-01040	A	The CSS DOF Service shall provide the capability to marshal and unmarshal the arguments and the returned value transparently while making a remote procedure call.
			C-CSS-01050	A	The CSS DOF Service shall provide the capability to marshal and unmarshal standard types to/from a common standard format.
			C-CSS-01060	A	The CSS DOF Service shall provide the capability to define marshaling and unmarshaling routines for user defined types.
			C-CSS-01070	A	The CSS DOF Service shall provide server APIs to register/unregister services in the namespaces (in different administrative domains) under different views (server/group/profile).
			C-CSS-01080	A	The CSS DOF Service shall provide server APIs to register/unregister different implementations of an interface in the namespace.
			C-CSS-01090	A	The CSS DOF Service shall provide server APIs to register/unregister individual objects implementing an interface in the namespace.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01100	A	The CSS DOF Service shall provide server APIs to register their services using different protocols in the namespace.
			C-CSS-01110	A	The CSS DOF Service shall provide server APIs to register their services with the local endpoint mapper with the proper port number.
			C-CSS-01120	A	The CSS DOF Service shall provide mechanisms to shutdown a service gracefully, by allowing the servers to unregister the server information from the namespace.
			C-CSS-01130	A	The CSS DOF Service shall provide server APIs to limit the maximum number of threads to use in servicing the requests concurrently.
			C-CSS-01140	A	The CSS DOF Service shall provide client APIs to bind to services (registered in the local namespace as well as remote namespaces) by using any of the following information to achieve location transparency of services. a. a service name b. an interface name c. an object name d. a host name and communication protocol e. an object reference
			C-CSS-01150	A	The CSS DOF Service shall return gracefully by throwing an exception or returning an error code when it can not retrieve the binding information or can not resolve a binding.
			C-CSS-01160	A	The CSS DOF Service shall provide client APIs to specify a confidence level of the binding information as follows: a. a low confidence level indicating the use of a local cache to obtain binding information b. a medium confidence level indicating the DOF to get the binding information from any of the directory replicas. c. a high confidence level indicating the DOF to get the binding information from the master copy of the directory services.
			C-CSS-01170	A	The CSS DOF Service shall provide APIs to set/get the authentication service type to be used between the server and the client.
			C-CSS-01180	A	The CSS DOF Service shall provide APIs to set/get authorization service type to be used between the client and the server.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01190	A	The CSS DOF Service shall provide APIs to maintain the integrity of the data to be passed between the client and the server.
			C-CSS-01200	A	The CSS DOF Service shall provide APIs to maintain the privacy of the data passed between the client and the server by encrypting and decrypting the data.
			C-CSS-01210	A	The CSS DOF Service shall provide APIs to set the identity of a given principal to a given process.
			C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
			C-CSS-26065	A	The CSS Thread Service shall provide an API to release locks associated with resources.
ESN-0450#B	The ESN shall provide process-to-process communication service.		C-CSS-22065	A	The CSS Message Service shall log event messages to the MSS management agents whenever the message service could not deliver a message to any receiver in the time period set by the sender of the message.
			C-CSS-22000	A	The CSS Message service shall provide an API for senders to send messages to receivers asynchronously without waiting for the receivers to receive it.
			C-CSS-22010	A	The CSS Message service shall provide an API for senders to send messages to receivers in a deferred synchronously manner through an intermediary where by they can contact the intermediary at a latter time to receive the result.
			C-CSS-22040	A	The CSS Message Service shall provide an API for the sender to designate multiple receivers for asynchronous messages.
			C-CSS-22050	A	The CSS Message Service shall support multiple message queues so different groups of processes can use different message queues.
			C-CSS-22060	A	The CSS Message Service shall purge a message from the message queue after a user specified time irrespective of its delivery to the receivers.
			C-CSS-22070	A	The CSS Message Service shall store undeliverable messages and retrieve and transmit them later.
			C-CSS-22090	A	The CSS Message Service shall provide the capability to locate and send (push model) the messages to receivers.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-22100	A	The CSS Message Service shall provide a non blocking API for the receiver to contact the message queue and get (pull model) the message.
			C-CSS-22110	A	The CSS Message service shall support guaranteed delivery of the message to the receiver.
			C-CSS-22120	A	The CSS Message service shall provide an API for the sender of the message to get the acknowledgment information the message service receives from the receivers.
			C-CSS-22130	A	The CSS Message service shall associate the receiver to a returned value and maintain that information locally until the sender requests that information.
			C-CSS-22140	A	The CSS Message Service shall provide an API for the sender of the message to receive return information stored at the message queue.
			C-CSS-22150	A	The CSS Message Service shall defer sending a message to a receiver, if the receiver is not active, and should try sending the message periodically with a set interval of time until the receiver is active.
			C-CSS-26010	A	The CSS Thread Service shall allow the option that each invocation of a server operation to run as a distinct thread.
			C-CSS-26020	A	The CSS Thread Service shall protect against conflicts between different threads accessing the same data.
			C-CSS-26030	A	The CSS Thread Service shall take into account the possibility that other threads may change shared data at any point. Code that will function correctly when executed by multiple concurrent threads is called thread-safe.
			C-CSS-26040	A	The CSS Thread Service shall provide an API that synchronizes the access of shared data between concurrent threads.
			C-CSS-26050	A	The CSS Thread Service shall provide a synchronizing object that is in one of two states: locked or unlocked.
			C-CSS-26060	A	The CSS Thread Service shall provide an API that allows each thread to lock the synchronizing object before it accesses the shared data.
			C-CSS-26070	A	The CSS Thread Service shall provide an API that allows each thread to unlock the synchronizing object when it is finished accessing that data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-26080	A	The CSS Thread Service shall if the synchronizing object is locked by another thread, block the thread requesting the lock.
			C-CSS-01000	A	The CSS DOF Service shall provide a standards-based Interface Definition Language (IDL) and language mappings to at least C and C++ (limited) languages.
			C-CSS-01010	A	The CSS DOF provided IDL shall support versioning of the interface supporting minor and major versions.
			C-CSS-01020	A	The IDL supported minor versioning shall be upward compatible that requires no changes in the client software to communicate with the new implementation.
			C-CSS-01030	A	The CSS DOF Service shall support the passing of the general error status as a parameter in calls between the clients and servers automatically.
			C-CSS-01040	A	The CSS DOF Service shall provide the capability to marshal and unmarshal the arguments and the returned value transparently while making a remote procedure call.
			C-CSS-01050	A	The CSS DOF Service shall provide the capability to marshal and unmarshal standard types to/from a common standard format.
			C-CSS-01060	A	The CSS DOF Service shall provide the capability to define marshaling and unmarshaling routines for user defined types.
			C-CSS-01070	A	The CSS DOF Service shall provide server APIs to register/unregister services in the namespaces (in different administrative domains) under different views (server/group/profile).
			C-CSS-01080	A	The CSS DOF Service shall provide server APIs to register/unregister different implementations of an interface in the namespace.
			C-CSS-01090	A	The CSS DOF Service shall provide server APIs to register/unregister individual objects implementing an interface in the namespace.
			C-CSS-01100	A	The CSS DOF Service shall provide server APIs to register their services using different protocols in the namespace.
			C-CSS-01110	A	The CSS DOF Service shall provide server APIs to register their services with the local endpoint mapper with the proper port number.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01120	A	The CSS DOF Service shall provide mechanisms to shutdown a service gracefully, by allowing the servers to unregister the server information from the namespace.
			C-CSS-01130	A	The CSS DOF Service shall provide server APIs to limit the maximum number of threads to use in servicing the requests concurrently.
			C-CSS-01140	A	The CSS DOF Service shall provide client APIs to bind to services (registered in the local namespace as well as remote namespaces) by using any of the following information to achieve location transparency of services. a. a service name b. an interface name c. an object name d. a host name and communication protocol e. an object reference
			C-CSS-01150	A	The CSS DOF Service shall return gracefully by throwing an exception or returning an error code when it can not retrieve the binding information or can not resolve a binding.
			C-CSS-01160	A	The CSS DOF Service shall provide client APIs to specify a confidence level of the binding information as follows: a. a low confidence level indicating the use of a local cache to obtain binding information b. a medium confidence level indicating the DOF to get the binding information from any of the directory replicas. c. a high confidence level indicating the DOF to get the binding information from the master copy of the directory services.
			C-CSS-01170	A	The CSS DOF Service shall provide APIs to set/get the authentication service type to be used between the server and the client.
			C-CSS-01180	A	The CSS DOF Service shall provide APIs to set/get authorization service type to be used between the client and the server.
			C-CSS-01190	A	The CSS DOF Service shall provide APIs to maintain the integrity of the data to be passed between the client and the server.
			C-CSS-01200	A	The CSS DOF Service shall provide APIs to maintain the privacy of the data passed between the client and the server by encrypting and decrypting the data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-01210	A	The CSS DOF Service shall provide APIs to set the identity of a given principal to a given process.
			C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
			C-CSS-26065	A	The CSS Thread Service shall provide an API to release locks associated with resources.
			C-CSS-10810	B	The CSS DCCI shall accept lifecycle commands request from MSS.
			C-CSS-22080	B	The CSS Message Service shall provide an API for the receiver to register interest in receiving messages from a certain sender.
			C-CSS-22180	B	The CSS Message Service shall provide an API that will allow thread processes to be scheduled.
			C-CSS-22190	B	In deferred synchronous mode, the CSS Message Service shall provide an API that will allow a user to retrieve the results of the execution of a thread.
			C-CSS-22200	B	The CSS Message Service shall provide an API that will supply the status of a thread process.
			C-CSS-22210	B	The CSS Message Service shall provide an API that will inform the user when a thread process has finished executing.
			C-CSS-29000	B	The CSS Transaction Processing Service shall be object oriented.
			C-CSS-65050	B	The CSS Secure service Web shall use DCE RPC's that will allow the server to use DCE provided services.
ESN-0490#A	The ESN shall provide a name-to-attribute mapping Directory Service at a minimum.		C-CSS-20085	A	The CSS Directory Service shall interact with the Security Service to provide principal based security to the entries in the CDS namespace and an enhanced host based security for the entries in the GDS namespace.
			C-CSS-20130	A	The CSS Directory Service shall provide namespaces that are compatible with the existing NASA X.500 and DNS directory services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-20000	A	The CSS Directory service shall provide the basic functionality to save and retrieve information into the local namespace: a. Create/Delete/Get context (key) b. List context. c. Set/Get attributes. d. Create/Delete attributes. e. List attributes. f. Set/Get attribute information.
			C-CSS-20010	A	The CSS shall provide implementations of the DNS and X.500 namespaces.
			C-CSS-20020	A	The CSS Directory service shall provide a mechanism to periodically update copies of the namespace from the namespace designated as the master.
			C-CSS-20070	A	The CSS Directory Service client shall maintain local cache to keep recently lookup information from the namespace for more efficient further lookups.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
			C-CSS-20110	A	The CSS Directory service shall determine which naming service to use from a given context.
			C-CSS-20120	A	The CSS Directory service shall provide a mechanism to communicate with both X.500 and DNS naming services in resolving lookups.
			C-CSS-20025	A	The updating of the namespace shall be done a. automatically b. manually by the administrator.
ESN-0490#B	The ESN shall provide a name-to-attribute mapping Directory Service at a minimum.		C-CSS-20085	A	The CSS Directory Service shall interact with the Security Service to provide principal based security to the entries in the CDS namespace and an enhanced host based security for the entries in the GDS namespace.
			C-CSS-20130	A	The CSS Directory Service shall provide namespaces that are compatible with the existing NASA X.500 and DNS directory services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-20000	A	The CSS Directory service shall provide the basic functionality to save and retrieve information into the local namespace: a. Create/Delete/Get context (key) b. List context. c. Set/Get attributes. d. Create/Delete attributes. e. List attributes. f. Set/Get attribute information.
			C-CSS-20010	A	The CSS shall provide implementations of the DNS and X.500 namespaces.
			C-CSS-20020	A	The CSS Directory service shall provide a mechanism to periodically update copies of the namespace from the namespace designated as the master.
			C-CSS-20070	A	The CSS Directory Service client shall maintain local cache to keep recently lookup information from the namespace for more efficient further lookups.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
			C-CSS-20110	A	The CSS Directory service shall determine which naming service to use from a given context.
			C-CSS-20120	A	The CSS Directory service shall provide a mechanism to communicate with both X.500 and DNS naming services in resolving lookups.
			C-CSS-20025	A	The updating of the namespace shall be done a. automatically b. manually by the administrator.
			C-CSS-65160	B	The CSS Secure Web service shall support the X.500 standard for naming and locating DCE cells.
			C-CSS-65170	B	The CSS Secure Web service shall support the Domain Name Service specification.
ESN-0510#A	The directory function shall be able to respond to requests for information concerning named objects, either physical or logical, so as to support communications with those objects.		C-CSS-20085	A	The CSS Directory Service shall interact with the Security Service to provide principal based security to the entries in the CDS namespace and an enhanced host based security for the entries in the GDS namespace.
			C-CSS-20130	A	The CSS Directory Service shall provide namespaces that are compatible with the existing NASA X.500 and DNS directory services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-20000	A	The CSS Directory service shall provide the basic functionality to save and retrieve information into the local namespace: a. Create/Delete/Get context (key) b. List context. c. Set/Get attributes. d. Create/Delete attributes. e. List attributes. f. Set/Get attribute information.
			C-CSS-20010	A	The CSS shall provide implementations of the DNS and X.500 namespaces.
			C-CSS-20020	A	The CSS Directory service shall provide a mechanism to periodically update copies of the namespace from the namespace designated as the master.
			C-CSS-20070	A	The CSS Directory Service client shall maintain local cache to keep recently lookup information from the namespace for more efficient further lookups.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
			C-CSS-20110	A	The CSS Directory service shall determine which naming service to use from a given context.
			C-CSS-20120	A	The CSS Directory service shall provide a mechanism to communicate with both X.500 and DNS naming services in resolving lookups.
			C-CSS-20025	A	The updating of the namespace shall be done a. automatically b. manually by the administrator.
ESN-0510#B	The directory function shall be able to respond to requests for information concerning named objects, either physical or logical, so as to support communications with those objects.		C-CSS-20085	A	The CSS Directory Service shall interact with the Security Service to provide principal based security to the entries in the CDS namespace and an enhanced host based security for the entries in the GDS namespace.
			C-CSS-20130	A	The CSS Directory Service shall provide namespaces that are compatible with the existing NASA X.500 and DNS directory services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-20000	A	The CSS Directory service shall provide the basic functionality to save and retrieve information into the local namespace: a. Create/Delete/Get context (key) b. List context. c. Set/Get attributes. d. Create/Delete attributes. e. List attributes. f. Set/Get attribute information.
			C-CSS-20010	A	The CSS shall provide implementations of the DNS and X.500 namespaces.
			C-CSS-20020	A	The CSS Directory service shall provide a mechanism to periodically update copies of the namespace from the namespace designated as the master.
			C-CSS-20070	A	The CSS Directory Service client shall maintain local cache to keep recently lookup information from the namespace for more efficient further lookups.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
			C-CSS-20110	A	The CSS Directory service shall determine which naming service to use from a given context.
			C-CSS-20120	A	The CSS Directory service shall provide a mechanism to communicate with both X.500 and DNS naming services in resolving lookups.
			C-CSS-20025	A	The updating of the namespace shall be done a. automatically b. manually by the administrator.
ESN-0590#A	The ESN Directory Service shall be protected by access control capabilities.		C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21000	IR1	The CSS Security service shall provide an API to verify the identity of users.
ESN-0590#B	The ESN Directory Service shall be protected by access control capabilities.		C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21000	IR1	The CSS Security service shall provide an API to verify the identity of users.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0600#A	The ESN Directory service shall include services and supporting mechanisms to authenticate the credentials of a user for the purpose of granting access rights and authorizing requested operations.		C-CSS-20080	A	The CSS Directory Service shall interact with the Security Service to provide host based security to the entries in the namespace.
			C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.
			C-CSS-21000	IR1	The CSS Security service shall provide an API to verify the identity of users.
ESN-0600#B	The ESN Directory service shall include services and supporting mechanisms to authenticate the credentials of a user for the purpose of granting access rights and authorizing requested operations.		C-CSS-20080	A	The CSS Directory Service shall interact with the Security Service to provide host based security to the entries in the namespace.
			C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.
			C-CSS-21000	IR1	The CSS Security service shall provide an API to verify the identity of users.
ESN-0610#A	The ESN shall include multiple Directory Service Agents (DSAs) which shall be collectively responsible for holding or retrieving all directory information which is needed by ECS.		C-CSS-20030	A	The CSS Directory Service shall provide the capability to partition the namespace and distribute and maintain them at different hosts on the network.
			C-CSS-20040	A	The CSS Directory Service shall provide the capability to replicate partitions of the namespace on different hosts.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-20050	A	The CSS Directory service shall provide multiple directory agents which cooperate among themselves through referral and chaining to perform directory operations.
			C-CSS-20060	A	The CSS Directory service shall provide a way to denote the relative root of the namespace.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
ESN-0610#B	The ESN shall include multiple Directory Service Agents (DSAs) which shall be collectively responsible for holding or retrieving all directory information which is needed by ECS.		C-CSS-20030	A	The CSS Directory Service shall provide the capability to partition the namespace and distribute and maintain them at different hosts on the network.
			C-CSS-20040	A	The CSS Directory Service shall provide the capability to replicate partitions of the namespace on different hosts.
			C-CSS-20050	A	The CSS Directory service shall provide multiple directory agents which cooperate among themselves through referral and chaining to perform directory operations.
			C-CSS-20060	A	The CSS Directory service shall provide a way to denote the relative root of the namespace.
			C-CSS-20090	A	The CSS Directory service shall define a minimum of 20 user defined attribute types for application users to store/retrieve attribute information.
ESN-0620#A	The ESN shall include a network management function to monitor and control the ESN.		C-MSS-60350	A	The MSS Fault Management Application Service shall have the capability to periodically execute diagnostic tests in order to isolate, characterize and identify a fault.
			C-MSS-60520	A	The MSS Fault Management Application Service shall provide the capability to allow the specification and execution of action routines in response to the notification of a fault.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	<p>The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.</p>
			C-MSS-14010	IR1	<p>The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.</p>
			C-MSS-20010	IR1	<p>The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.</p>
			C-MSS-16040	IR1	<p>The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.</p>
			C-MSS-20030	IR1	<p>The MSS Discovery Service shall report missing occurrences of managed objects.</p>
			C-MSS-16050	IR1	<p>The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.</p>
			C-MSS-16070	IR1	<p>The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways
			C-MSS-60420	A	The MSS Fault Management Application Service shall interface with the MSS Configuration Management Application Service and schedule a change in the configuration of the site when such a change in the configuration of the site is deemed necessary to recover from a fault.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
ESN-0620#B	The ESN shall include a network management function to monitor and control the ESN.		C-MSS-60350	A	The MSS Fault Management Application Service shall have the capability to periodically execute diagnostic tests in order to isolate, characterize and identify a fault.
			C-MSS-60520	A	The MSS Fault Management Application Service shall provide the capability to allow the specification and execution of action routines in response to the notification of a fault.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	<p>The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.</p>
			C-MSS-14010	IR1	<p>The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.</p>
			C-MSS-20010	IR1	<p>The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.</p>
			C-MSS-16040	IR1	<p>The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.</p>
			C-MSS-20030	IR1	<p>The MSS Discovery Service shall report missing occurrences of managed objects.</p>
			C-MSS-16050	IR1	<p>The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.</p>
			C-MSS-16070	IR1	<p>The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-60420	A	The MSS Fault Management Application Service shall interface with the MSS Configuration Management Application Service and schedule a change in the configuration of the site when such a change in the configuration of the site is deemed necessary to recover from a fault.
			C-ISS-20180	B	The ISS shall receive diagnostic test requests from the MSS.
			C-ISS-20200	B	The ISS shall send diagnostic test requests to the MSS.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66001	B	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways b. hosts c. operating systems d. peripherals e. data f. ECS applications.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0620#Ir1	The ESN shall include a network management function to monitor and control the ESN.	This requirement is supported as follows: Ir1 shall have the capability to monitor, but not control, Version 0 routers and any ECS-supplied LAN.	C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-66000	IR1	The MSS performance management application service shall be capable of monitoring the performance of the following ECS components a. network components 1. routers 2. links 3. bridges 4. gateways
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0640#A	The ESN shall include management functions at each ECS element, equipment or gateway within the ESN.		C-MSS-10090	A	The MSS shall interface with the Program Support Communications Network (PSCN) to exchange data identified in Table 5.1-1 as specified in ECS/PSCN IRD, 193-219-SE1-008.
			C-MSS-12130	IR1	The MSS MUI Service shall provide the capability for the M&O Staff to register and unregister managed objects.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	<p>The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.</p>
			C-MSS-12005	IR1	<p>The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.</p>
			C-MSS-14010	IR1	<p>The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.</p>
			C-MSS-20010	IR1	<p>The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.</p>
			C-MSS-16040	IR1	<p>The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.</p>
			C-MSS-20030	IR1	<p>The MSS Discovery Service shall report missing occurrences of managed objects.</p>
			C-MSS-16050	IR1	<p>The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
ESN-0640#B	The ESN shall include management functions at each ECS element, equipment or gateway within the ESN.		C-MSS-12130	IR1	The MSS MUI Service shall provide the capability for the M&O Staff to register and unregister managed objects.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-CSS-65090	B	The CSS Secure Web service shall provide an interface for the administration of the web server.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-20180	B	The ISS shall receive diagnostic test requests from the MSS.
			C-ISS-20200	B	The ISS shall send diagnostic test requests to the MSS.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
ESN-0640#Ir1	The ESN shall include management functions at each ECS element, equipment or gateway within the ESN.		C-MSS-12130	IR1	The MSS MUI Service shall provide the capability for the M&O Staff to register and unregister managed objects.
			C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
ESN-0650#A	The ESN shall perform the following network management functions for each protocol stack implemented in any ECS element, and each communications facility: a. Network Configuration Management b. Network Fault Management c. Network Performance Management d. Network Security Management		C-MSS-10420	A	The MSS shall interface with the ISS subsystems to exchange the data items in Table 5.1-6 as specified in the ECS internal ICDs, 313-DV3-003.
			C-MSS-66090	A	The MSS Performance Management Application Service shall have the capability to collect the following performance information about communication protocol stacks on managed devices: a. number of transport layer messages received with errors b. number of transport layer messages requiring retransmission c. number of transport layer messages received that could not be delivered d. number of jetwork layer messages received with errors e. number of network layer messages received that could not be delivered f. number of network layer messages that were discarded
			C-MSS-70110	A	The MSS site Security Management Application Service shall provide the capability to specify privileges for authorized users and user groups for access to ECS resources.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60420	A	The MSS Fault Management Application Service shall interface with the MSS Configuration Management Application Service and schedule a change in the configuration of the site when such a change in the configuration of the site is deemed necessary to recover from a fault.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66010	IR1	The MSS performance management application service shall be capable of monitoring ECS component protocol stack performance parameters defined in IETF RFC 1213.
			C-MSS-70100	IR1	The MSS site Security Management Application Service shall provide the capability to set, maintain, and update access control information for ECS resources.
			C-MSS-70130	IR1	The MSS site Security Management Application Service shall provide a command line interface and a GUI for the management of the following security databases: a. Authentication Database b. Authorization Database c. Network Database
ESN-0650#B	The ESN shall perform the following network management functions for each protocol stack implemented in any ECS element, and each communications facility: a. Network Configuration Management b. Network Fault Management c. Network Performance Management d. Network Security Management		C-MSS-66090	A	The MSS Performance Management Application Service shall have the capability to collect the following performance information about communication protocol stacks on managed devices: a. number of transport layer messages received with errors b. number of transport layer messages requiring retransmission c. number of transport layer messages received that could not be delivered d. number of jetwork layer messages received with errors e. number of network layer messages received that could not be delivered f. number of network layer messages that were discarded

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-70110	A	The MSS site Security Management Application Service shall provide the capability to specify privileges for authorized users and user groups for access to ECS resources.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-MSS-60420	A	The MSS Fault Management Application Service shall interface with the MSS Configuration Management Application Service and schedule a change in the configuration of the site when such a change in the configuration of the site is deemed necessary to recover from a fault.
			C-ISS-21010	B	The ISS-INHW CI shall provide LANs at the following sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66010	IR1	The MSS performance management application service shall be capable of monitoring ECS component protocol stack performance parameters defined in IETF RFC 1213.
			C-MSS-70100	IR1	The MSS site Security Management Application Service shall provide the capability to set, maintain, and update access control information for ECS resources.
			C-MSS-70130	IR1	The MSS site Security Management Application Service shall provide a command line interface and a GUI for the management of the following security databases: a. Authentication Database b. Authorization Database c. Network Database
ESN-0650#lr1	The ESN shall perform the following network management functions for each protocol stack implemented in any ECS element, and each communications facility: a. Network Configuration Management b. Network Fault Management c. Network Performance Management d. Network Security Management		C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66010	IR1	The MSS performance management application service shall be capable of monitoring ECS component protocol stack performance parameters defined in IETF RFC 1213.
			C-MSS-70130	IR1	The MSS site Security Management Application Service shall provide a command line interface and a GUI for the management of the following security databases: a. Authentication Database b. Authorization Database c. Network Database
ESN-0690#A	The ESN shall be capable of reconfiguration transparent to network users.		C-CSS-00100	A	The CSS Directory services shall maintain multiple copies of the namespace on different hosts to provide fault tolerance.
			C-CSS-00020	A	The CSS services shall have no single point of failure for functions associated with network databases and configuration data.
ESN-0690#B	The ESN shall be capable of reconfiguration transparent to network users.		C-CSS-00100	A	The CSS Directory services shall maintain multiple copies of the namespace on different hosts to provide fault tolerance.
			C-CSS-00020	A	The CSS services shall have no single point of failure for functions associated with network databases and configuration data.
ESN-0740#A	The ESN network management service shall retrieve performance/fault data about ESN protocol stacks and equipment.		C-MSS-66090	A	The MSS Performance Management Application Service shall have the capability to collect the following performance information about communication protocol stacks on managed devices: a. number of transport layer messages received with errors b. number of transport layer messages requiring retransmission c. number of transport layer messages received that could not be delivered d. number of jetwork layer messages received with errors e. number of network layer messages received that could not be delivered f. number of network layer messages that were discarded
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	<p>The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.</p>
			C-MSS-12005	IR1	<p>The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.</p>
			C-MSS-14010	IR1	<p>The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.</p>
			C-MSS-20010	IR1	<p>The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.</p>
			C-MSS-16040	IR1	<p>The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.</p>
			C-MSS-20030	IR1	<p>The MSS Discovery Service shall report missing occurrences of managed objects.</p>
			C-MSS-16050	IR1	<p>The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66050	IR1	The MSS performance management application service shall be capable of requesting performance data from each individual managed object: a. at configurable intervals b. on demand.
			C-MSS-66060	IR1	The MSS performance management application service shall be capable of receiving requested performance data from ECS components.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-66040	IR1	The MSS performance management application service shall be capable of specifying which available performance metrics are to be gathered from each individual managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66010	IR1	The MSS performance management application service shall be capable of monitoring ECS component protocol stack performance parameters defined in IETF RFC 1213.
			C-MSS-66030	IR1	The MSS performance management application service shall be capable of receiving managed object definitions for each managed object.
ESN-0740#B	The ESN network management service shall retrieve performance/fault data about ESN protocol stacks and equipment.		C-MSS-66090	A	The MSS Performance Management Application Service shall have the capability to collect the following performance information about communication protocol stacks on managed devices: a. number of transport layer messages received with errors b. number of transport layer messages requiring retransmission c. number of transport layer messages received that could not be delivered d. number of jetwork layer messages received with errors e. number of network layer messages received that could not be delivered f. number of network layer messages that were discarded
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66050	IR1	The MSS performance management application service shall be capable of requesting performance data from each individual managed object: a. at configurable intervals b. on demand.
			C-MSS-66060	IR1	The MSS performance management application service shall be capable of receiving requested performance data from ECS components.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-20040	IR1	The MSS Discovery Service shall update the object database after the Discovery Service receives a request to register/unregister a managed object.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-66040	IR1	The MSS performance management application service shall be capable of specifying which available performance metrics are to be gathered from each individual managed object.
			C-ISS-02110	B	The ISS-INHW CI physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66010	IR1	The MSS performance management application service shall be capable of monitoring ECS component protocol stack performance parameters defined in IETF RFC 1213.
			C-MSS-66030	IR1	The MSS performance management application service shall be capable of receiving managed object definitions for each managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0740#Ir1	The ESN network management service shall retrieve performance/fault data about ESN protocol stacks and equipment.	IR1: Total applicability.	C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0750#A	The ESN shall provide statistical processing capabilities to allow extraction and tabulation of network performance data.		C-MSS-66170	IR1	The MSS performance management application service shall log ECS performance data pertaining to ECS network components and operating system resources.
			C-MSS-66180	IR1	The MSS performance management application service shall have the capability to generate the following types of statistics for a configurable period of time for performance data stored in the Management Database: a. average b. median c. maximum d. minimum e. ratios f. rates g. standard deviations.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66260	IR1	The MSS performance management application service shall provide queries that generate performance statistics from performance data stored in the Management Database.
ESN-0750#B	The ESN shall provide statistical processing capabilities to allow extraction and tabulation of network performance data.		C-MSS-66171	B	The MSS performance management application service shall log ECS performance data pertaining to ECS network components, ECS applications and operating system resources.
			C-MSS-66180	IR1	The MSS performance management application service shall have the capability to generate the following types of statistics for a configurable period of time for performance data stored in the Management Database: a. average b. median c. maximum d. minimum e. ratios f. rates g. standard deviations.
			C-MSS-66260	IR1	The MSS performance management application service shall provide queries that generate performance statistics from performance data stored in the Management Database.
ESN-0760#A	The ESN report generation function shall provide, on an interactive and scheduled basis, accounting, network configuration, fault and performance management information.		C-MSS-60210	A	The MSS Fault Management Application Service shall maintain a list of external service providers, M&O operators, and applications to be notified in the event that a specified fault is detected.
			C-MSS-60220	A	The MSS Fault Management Application Service shall have the capability to send the notification of a fault to registered recipients.
			C-MSS-60300	A	The MSS Fault Management Application Service shall provide the capability to identify routes between selected pairs of hosts on the ESN.
			C-MSS-60230	A	The MSS Fault Management Application Service shall have the capability of generating a notification within a maximum of five minutes of fault detection.
			C-MSS-60610	A	The MSS Fault Management Application Service shall have the capability to build histories for different types of errors and events detected, for the purpose of analysis.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-68090	A	The MSS Performance Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-60380	IR1	The MSS Fault Management Application Service at the sites shall isolate, locate, and identify faults, identify subsystem, equipment and software faults, and identify the nature of the faults detected within its site.
			C-MSS-70710	IR1	The MSS Security Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-60600	IR1	The MSS Fault Management Application Service shall have the capability to generate, on an interactive and on a scheduled basis, reports on performance/error data that it has been configured to collect.
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.
ESN-0760#B	The ESN report generation function shall provide, on an interactive and scheduled basis, accounting, network configuration, fault and performance management information.		C-MSS-60210	A	The MSS Fault Management Application Service shall maintain a list of external service providers, M&O operators, and applications to be notified in the event that a specified fault is detected.
			C-MSS-60220	A	The MSS Fault Management Application Service shall have the capability to send the notification of a fault to registered recipients.
			C-MSS-60230	A	The MSS Fault Management Application Service shall have the capability of generating a notification within a maximum of five minutes of fault detection.
			C-MSS-60610	A	The MSS Fault Management Application Service shall have the capability to build histories for different types of errors and events detected, for the purpose of analysis.
			C-MSS-68090	A	The MSS Performance Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-60380	IR1	The MSS Fault Management Application Service at the sites shall isolate, locate, and identify faults, identify subsystem, equipment and software faults, and identify the nature of the faults detected within its site.
			C-MSS-70710	IR1	The MSS Security Management Application Service shall have the capability to generate reports from collected management data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60600	IR1	The MSS Fault Management Application Service shall have the capability to generate, on an interactive and on a scheduled basis, reports on performance/error data that it has been configured to collect.
			C-CSS-10860	B	The CSS DCCI shall have the capability to send detected hardware and software fault information to MSS.
			C-MSS-60301	B	The MSS Fault Management Application Service shall provide the capability to identify routes between selected pairs of hosts on the EBnet.
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0760#Ir1	The ESN report generation function shall provide, on an interactive and scheduled basis, network configuration, fault and performance management information.	IR1: interactive basis only.	C-MSS-60380	IR1	The MSS Fault Management Application Service at the sites shall isolate, locate, and identify faults, identify subsystem, equipment and software faults, and identify the nature of the faults detected within its site.
			C-MSS-60600	IR1	The MSS Fault Management Application Service shall have the capability to generate, on an interactive and on a scheduled basis, reports on performance/error data that it has been configured to collect.
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0770#A	The ESN query capability shall generate ad hoc statistics and reports based on parameters entered.		C-MSS-90520	A	The Report Generator shall have the capability to generate ad hoc reports from management data maintained in the DBMS.
			C-MSS-90530	A	The Report Generator shall provide the capability to format reports to include the report: a. title b. header c. footer d. page number e. date/time of report
			C-MSS-90500	A	The Report Generator shall be compatible with the DBMS.
			C-MSS-90510	A	The Report Generator shall provide a Motif based Graphical User Interface (GUI) for creating ad hoc reports.
			C-MSS-90080	A	The DBMS shall support mathematical operations to generate statistics from management data to include: a. average b. maximum c. minimum d. standard deviation e. sum f. count g. variance
			C-MSS-68090	A	The MSS Performance Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-90600	A	The Report Generator shall provide the capability to redirect generated reports to: a. console b. disk file c. printer
			C-MSS-90570	IR1	The Report Generator shall have the capability to generate charts and graphs (e.g., bar, pie, line, etc.) from management data maintained in the DBMS.
ESN-0770#B	The ESN query capability shall generate ad hoc statistics and reports based on parameters entered.		C-MSS-90520	A	The Report Generator shall have the capability to generate ad hoc reports from management data maintained in the DBMS.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-90530	A	The Report Generator shall provide the capability to format reports to include the report: a. title b. header c. footer d. page number e. date/time of report
			C-MSS-90500	A	The Report Generator shall be compatible with the DBMS.
			C-MSS-90510	A	The Report Generator shall provide a Motif based Graphical User Interface (GUI) for creating ad hoc reports.
			C-MSS-90080	A	The DBMS shall support mathematical operations to generate statistics from management data to include: a. average b. maximum c. minimum d. standard deviation e. sum f. count g. variance
			C-MSS-68090	A	The MSS Performance Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-90600	A	The Report Generator shall provide the capability to redirect generated reports to: a. console b. disk file c. printer
			C-MSS-90570	IR1	The Report Generator shall have the capability to generate charts and graphs (e.g., bar, pie, line, etc.) from management data maintained in the DBMS.
ESN-0775#A	The ESN management service shall have the capability to redirect its reports to different devices such as console, disk or printer.		C-MSS-77090	A	The MSS Accountability Management Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-90600	A	The Report Generator shall provide the capability to redirect generated reports to: a. console b. disk file c. printer

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-77080	A	The MSS Accountability Management Service shall have the capability to generate reports from collected management data.
			C-MSS-70710	IR1	The MSS Security Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-60620	IR1	The MSS Fault Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-68100	IR1	The MSS Performance Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-70720	IR1	The MSS Security Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
ESN-0775#B	The ESN management service shall have the capability to redirect its reports to different devices such as console, disk or printer.		C-MSS-77090	A	The MSS Accountability Management Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-90600	A	The Report Generator shall provide the capability to redirect generated reports to: a. console b. disk file c. printer
			C-MSS-77080	A	The MSS Accountability Management Service shall have the capability to generate reports from collected management data.
			C-MSS-70710	IR1	The MSS Security Management Application Service shall have the capability to generate reports from collected management data.
			C-MSS-60620	IR1	The MSS Fault Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-68100	IR1	The MSS Performance Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-70720	IR1	The MSS Security Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
ESN-0775#Ir1	The ESN management service shall have the capability to redirect its reports to different devices such as console, disk or printer.	IR1: Total applicability.	C-MSS-60620	IR1	The MSS Fault Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
			C-MSS-68100	IR1	The MSS Performance Management Application Service shall have the capability to redirect reports to: a. console b. disk file c. printer
ESN-0780#A	The network elements including the Internet interfaces, shall have the capability to report, periodically and on an interactive basis , network statistics to the ESN network management function, including the following information: a. Network round trip delay b. Network reset and restart indications c. Outages and CRC errors d. Performance statistics		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-66050	IR1	The MSS performance management application service shall be capable of requesting performance data from each individual managed object: a. at configurable intervals b. on demand.
			C-MSS-66060	IR1	The MSS performance management application service shall be capable of receiving requested performance data from ECS components.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-HRD-32010	IR1	The ISS physical components, and services shall have the capability to be monitored via SNMP agents.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-66080	IR1	The MSS performance management application service shall be capable of retrieving the following data for all network component interfaces: a. operational status b. type c. speed d. octets in/out e. packets in/out f. discards in/out g. errors in/out
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.
ESN-0780#B	The network elements including the Internet interfaces, shall have the capability to report, periodically and on an interactive basis , network statistics to the ESN network management function, including the following information: a. Network round trip delay b. Network reset and restart indications c. Outages and CRC errors d. Performance statistics		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66050	IR1	The MSS performance management application service shall be capable of requesting performance data from each individual managed object: a. at configurable intervals b. on demand.
			C-MSS-66060	IR1	The MSS performance management application service shall be capable of receiving requested performance data from ECS components.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-MSS-66080	IR1	The MSS performance management application service shall be capable of retrieving the following data for all network component interfaces: a. operational status b. type c. speed d. octets in/out e. packets in/out f. discards in/out g. errors in/out
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0790#A	The ESN shall include the following configuration management functions at a minimum: a. collect information describing the state of the network subsystem and its communications resources, b. exercise control over the configuration, parameters, and resources of the subsystem, and over the information collected, c. store the configuration information collected, and d. display the configuration information		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: <ul style="list-style-type: none"> a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-66120	IR1	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: <ul style="list-style-type: none"> a. on-line b. off-line c. in test mode

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66080	IR1	The MSS performance management application service shall be capable of retrieving the following data for all network component interfaces: a. operational status b. type c. speed d. octets in/out e. packets in/out f. discards in/out g. errors in/out
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60020	IR1	The MSS Fault Management Application Service shall provide the capability to define categories of faults.
			C-MSS-60190	IR1	The MSS Fault Management Application Service shall use the Logging Services to record each detected fault.
ESN-0790#B	The ESN shall include the following configuration management functions at a minimum: a. collect information describing the state of the network subsystem and its communications resources, b. exercise control over the configuration, parameters, and resources of the subsystem, and over the information collected, c. store the configuration information collected, and d. display the configuration information		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-66080	IR1	The MSS performance management application service shall be capable of retrieving the following data for all network component interfaces: a. operational status b. type c. speed d. octets in/out e. packets in/out f. discards in/out g. errors in/out
			C-MSS-66121	B	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: a. on-line b. off-line c. in test mode d. In maintenance, e. in simulation mode.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60020	IR1	The MSS Fault Management Application Service shall provide the capability to define categories of faults.
			C-MSS-60190	IR1	The MSS Fault Management Application Service shall use the Logging Services to record each detected fault.
ESN-0790#Ir1	The ESN shall include the following configuration management functions at a minimum: a. collect information describing the state of the network subsystem and its communications resources, b. exercise control over the configuration, parameters, and resources of the subsystem, and over the information collected, c. store the configuration information collected, and d. display the configuration information.	As supported by V0 devices and policy. Otherwise not an IR1 requirement.	C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-66120	IR1	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: a. on-line b. off-line c. in test mode

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66080	IR1	The MSS performance management application service shall be capable of retrieving the following data for all network component interfaces: a. operational status b. type c. speed d. octets in/out e. packets in/out f. discards in/out g. errors in/out
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60020	IR1	The MSS Fault Management Application Service shall provide the capability to define categories of faults.
			C-MSS-60190	IR1	The MSS Fault Management Application Service shall use the Logging Services to record each detected fault.
ESN-0800#A	The ESN shall be capable of displaying the local network configuration status related to each system locally, and for all systems at the ESN network management facility.	All applicable sites	C-MSS-60160	A	The MSS EMC Fault Management Application Service shall have the capability to receive notifications of detected faults and degradation of performance from: a. Site fault management applications b. Other external systems as defined in Section 5.1.
			C-MSS-12040	IR1	The MSS MUI Service shall provide a capability for an application to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-60170	IR1	The MSS EMC Fault Management Application Service shall be capable of requesting fault notification and performance degradation data from : a. Site Fault Management Applications b. Other external systems as defined in Section 5.1.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification d. audible alert
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
ESN-0800#B	The ESN shall be capable of displaying the local network configuration status related to each system locally, and for all systems at the ESN network management facility.	All applicable sites	C-MSS-12040	IR1	The MSS MUI Service shall provide a capability for an application to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-60161	B	The MSS EMC Fault Management Application Service shall have the capability to receive notifications of detected faults and degradation of performance from: a. Site fault management applications b. EBnet c. ASTER d. NOAA (SAA) e. Landsat(MMO) f. NSI g. NOLAN
			C-MSS-60171	B	The MSS EMC Fault Management Application Service shall be capable of requesting fault notification and performance degradation data from : a. Site Fault Management Applications b. EBnet c. ASTER d. NOAA(SAA) e. Landsat(MMO) f. NSI g. NOLAN
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : <ul style="list-style-type: none"> a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: <ul style="list-style-type: none"> 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
ESN-0800#Ir1	The ESN shall be capable of displaying the local network configuration status related to each system locally, and for all systems at the ESN network management facility.	IR1: Network Mgmt Facility @ EDF	C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-14030	IR1	The MSS Map/Collection Service shall provide a capability to define a hierarchical relationship between maps and sub-maps (i.e., a graphical hierarchical tree)
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-14020	IR1	The MSS Map/Collection Service shall provide a capability to define maps and objects.
			C-MSS-60170	IR1	The MSS EMC Fault Management Application Service shall be capable of requesting fault notification and performance degradation data from : <ul style="list-style-type: none"> a. Site Fault Management Applications b. Other external systems as defined in Section 5.1.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : <ul style="list-style-type: none"> a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: <ul style="list-style-type: none"> 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
			C-MSS-68000	IR1	The MSS performance management application service shall be capable of graphically displaying the operational state of managed objects through the MUI service.
ESN-0810#A	ESN shall provide the following fault management functions at a minimum: <ul style="list-style-type: none"> a. detect the occurrence of faults, b. control the collection of fault information, and c. diagnose the probable cause of a detected fault 		C-MSS-60030	A	The MSS Fault Management Application Service shall provide the capability to assign faults to categories.
			C-MSS-60040	A	The MSS Fault Management Application Service shall provide the capability to assign severity levels to faults.
			C-MSS-60050	A	The MSS Fault Management Application Service shall be capable of providing the Management Data Access Service with a configurable list of fault categories that specify whether to enable or disable the logging of fault notifications for that fault category.
			C-MSS-60060	A	The MSS Fault Management Application Service shall provide the capability to enable or disable the display of fault notifications received from a specific managed object based on fault category assigned to that fault.
			C-MSS-60070	A	The MSS Fault Management Application Service shall provide the capability to specify additional information to be added to a disk log file, based on the fault category, when the notification of a fault is received.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60300	A	The MSS Fault Management Application Service shall provide the capability to identify routes between selected pairs of hosts on the ESN.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60020	IR1	The MSS Fault Management Application Service shall provide the capability to define categories of faults.
			C-MSS-60100	IR1	The MSS Fault Management Application Service shall have the capability to poll for the detection of fault/performance information.
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.
			C-MSS-60120	IR1	The MSS Fault Management Application Service shall have the capability to define the frequency with which polling is done for the detection of fault/performance information.
			C-MSS-60150	IR1	The MSS Fault Management Application Service shall have the capability to receive fault notifications from the Management Agent Service.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0810#B	ESN shall provide the following fault management functions at a minimum: a. detect the occurrence of faults, b. control the collection of fault information, and c. diagnose the probable cause of a detected fault		C-MSS-60030	A	The MSS Fault Management Application Service shall provide the capability to assign faults to categories.
			C-MSS-60040	A	The MSS Fault Management Application Service shall provide the capability to assign severity levels to faults.
			C-MSS-60050	A	The MSS Fault Management Application Service shall be capable of providing the Management Data Access Service with a configurable list of fault categories that specify whether to enable or disable the logging of fault notifications for that fault category.
			C-MSS-60060	A	The MSS Fault Management Application Service shall provide the capability to enable or disable the display of fault notifications received from a specific managed object based on fault category assigned to that fault.
			C-MSS-60070	A	The MSS Fault Management Application Service shall provide the capability to specify additional information to be added to a disk log file, based on the fault category, when the notification of a fault is received.
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-14010	IR1	The MSS Maps/Collection Service shall retain the status of managed objects and their relationship to symbols that comprise a graphical representation of the physical network topology.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-MSS-60301	B	The MSS Fault Management Application Service shall provide the capability to identify routes between selected pairs of hosts on the EBnet.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60010	IR1	The MSS Fault Management Application Service shall provide the capability to create and display graphical representations of a given network topology consisting of the following: a. routers b. communication lines c. hosts d. peripherals e. applications
			C-MSS-60020	IR1	The MSS Fault Management Application Service shall provide the capability to define categories of faults.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60100	IR1	The MSS Fault Management Application Service shall have the capability to poll for the detection of fault/performance information.
			C-MSS-60110	IR1	The MSS Fault Management Application Service shall be capable of receiving fault notifications.
			C-MSS-60120	IR1	The MSS Fault Management Application Service shall have the capability to define the frequency with which polling is done for the detection of fault/performance information.
			C-MSS-60150	IR1	The MSS Fault Management Application Service shall have the capability to receive fault notifications from the Management Agent Service.
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
ESN-0815#A	Network simulation and traffic modeling capability shall be provided to troubleshoot network problems and to use in network planning.		C-MSS-69020	A	The MSS performance management application service shall be capable of performing operational benchmark tests.
			C-MSS-69030	A	The MSS performance management application service shall be capable of providing results of benchmark tests and results of predefined tests to the M&O staff for validation.
ESN-0815#B	Network simulation and traffic modeling capability shall be provided to troubleshoot network problems and to use in network planning.		C-MSS-69020	A	The MSS performance management application service shall be capable of performing operational benchmark tests.
			C-MSS-69030	A	The MSS performance management application service shall be capable of providing results of benchmark tests and results of predefined tests to the M&O staff for validation.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0830#A	The ESN shall have the capability to detect and report communications related errors and events both locally and at the ESN network management facility.		C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-60220	A	The MSS Fault Management Application Service shall have the capability to send the notification of a fault to registered recipients.
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-20010	IR1	The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0830#B	The ESN shall have the capability to detect and report communications related errors and events both locally and at the ESN network management facility.		C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-60220	A	The MSS Fault Management Application Service shall have the capability to send the notification of a fault to registered recipients.
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	<p>The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.</p>
			C-MSS-20010	IR1	<p>The MSS Discovery Service shall discover (via network protocol) new instances of managed objects.</p>
			C-MSS-16040	IR1	<p>The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.</p>
			C-MSS-20030	IR1	<p>The MSS Discovery Service shall report missing occurrences of managed objects.</p>
			C-MSS-16050	IR1	<p>The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.</p>
			C-MSS-16070	IR1	<p>The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event</p>
			C-MSS-14040	IR1	<p>The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree</p>
			C-MSS-20020	IR1	<p>The MSS Discovery Service shall detect missing occurrences of managed objects.</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-10870	B	The CSS DCCI shall have the capability to send event notification to MSS.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0830#Ir1	The ESN shall have the capability to detect and report communications related errors and events both locally and at the ESN network management facility.		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
ESN-0840#A	The ESN shall have error reporting, event logging and generation of alerts.		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
ESN-0840#B	The ESN shall have error reporting, event logging and generation of alerts.		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-20020	IR1	The MSS Discovery Service shall detect missing occurrences of managed objects.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-65130	B	The CSS Secure Web service must provide HTML formatted error messages to the web browser.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
ESN-0840#Ir1	The ESN shall have error reporting and event logging.		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-20030	IR1	The MSS Discovery Service shall report missing occurrences of managed objects.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-14040	IR1	The MSS Map/Collection Service shall propagate events associated with objects up the hierarchical tree
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60200	IR1	The MSS Fault Management Application Service shall have the capability to generate the following types of notifications for detected faults : a. a change in the color of an icon on a display b. a message in a pop-up notification window c. logging the following fault information to a disk log file: 1. fault type 2. date and time of occurrence of the fault 3. identification of the source of the notification (e.g. IP address, process name, etc.) 4. fault data received with the notification 5. operator-defined descriptive text d. audible alert
ESN-0900#A	Errors and events to be detected shall include at least: a. communications software version or configuration errors b. communications hardware errors c. protocol errors d. performance degradation conditions e. telecommunications errors and failures		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
ESN-0900#B	Errors and events to be detected shall include at least: a. communications software version or configuration errors b. communications hardware errors c. protocol errors d. performance degradation conditions e. telecommunications errors and failures		C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0900#Ir1	Errors and events to be detected shall include at least: b. communications hardware errors c. protocol errors d. performance degradation conditions e. telecommunications errors and failures		C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff
ESN-0910#A	The ESN fault management shall provide the capability to perform the following functions, at a minimum, both locally and at the ESN network management facility: a. set, view, and change alert threshold values b. enable and disable alert notifications (alarms) within a system c. enable and disable event reports within a system d. manage error and event logging files		C-MSS-12070	IR1	The MSS MUI Service shall have the capability to provide options and methods to the M&O Staff for screen configuration changes (color, symbol placement, etc) and for retaining the changes from session to session
			C-MSS-18200	A	The MSS Management Data Access Service shall provide the capability for an application via APIs to update fields in the management database.
			C-MSS-18220	A	The MSS Management Data Access Service shall provide the capability for an application via APIs to alter tables and fields in the management database.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18270	A	The MSS Management Data Access Service shall have the capability to schedule the archiving of log files at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60050	A	The MSS Fault Management Application Service shall be capable of providing the Management Data Access Service with a configurable list of fault categories that specify whether to enable or disable the logging of fault notifications for that fault category.
			C-MSS-60060	A	The MSS Fault Management Application Service shall provide the capability to enable or disable the display of fault notifications received from a specific managed object based on fault category assigned to that fault.
			C-MSS-12030	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-12040	IR1	The MSS MUI Service shall provide a capability for an application to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-12050	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to add, delete, and modify text strings
			C-MSS-12060	IR1	The MSS MUI Service shall provide a capability for an application to add, delete, and modify text strings
			C-MSS-12100	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to load and unload vendor or ECS defined MIB.
			C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-MSS-12130	IR1	The MSS MUI Service shall provide the capability for the M&O Staff to register and unregister managed objects.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-MSS-12110	IR1	The MSS MUI Service shall provide a capability for applications to load and unload vendor or ECS defined MIB.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12020	IR1	The MSS MUI Service shall have the capability to respond to keyboard and mouse input devices
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60080	IR1	The MSS Fault Management Application Service shall have the capability to establish, view, modify and delete thresholds on performance metrics it measures.
ESN-0910#B	The ESN fault management shall provide the capability to perform the following functions, at a minimum, both locally and at the ESN network management facility: a. set, view, and change alert threshold values b. enable and disable alert notifications (alarms) within a system c. enable and disable event reports within a system d. manage error and event logging files		C-MSS-12070	IR1	The MSS MUI Service shall have the capability to provide options and methods to the M&O Staff for screen configuration changes (color, symbol placement, etc) and for retaining the changes from session to session
			C-MSS-18200	A	The MSS Management Data Access Service shall provide the capability for an application via APIs to update fields in the management database.
			C-MSS-18220	A	The MSS Management Data Access Service shall provide the capability for an application via APIs to alter tables and fields in the management database.
			C-MSS-18260	A	The MSS Management Data Access Service shall have the capability to schedule the transfer and loading log files into the management database at the site.
			C-MSS-18270	A	The MSS Management Data Access Service shall have the capability to schedule the archiving of log files at the site.
			C-MSS-18280	A	The MSS Management Data Access Service shall have the capability to schedule the transfer of management data at the sites to the SMC.
			C-MSS-60050	A	The MSS Fault Management Application Service shall be capable of providing the Management Data Access Service with a configurable list of fault categories that specify whether to enable or disable the logging of fault notifications for that fault category.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-60060	A	The MSS Fault Management Application Service shall provide the capability to enable or disable the display of fault notifications received from a specific managed object based on fault category assigned to that fault.
			C-MSS-12030	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-12040	IR1	The MSS MUI Service shall provide a capability for an application to add/delete a symbol and to modify a symbol's shape, color and position
			C-MSS-12050	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to add, delete, and modify text strings
			C-MSS-12060	IR1	The MSS MUI Service shall provide a capability for an application to add, delete, and modify text strings
			C-MSS-12100	IR1	The MSS MUI Service shall provide a capability for the M&O Staff to load and unload vendor or ECS defined MIB.
			C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-MSS-12130	IR1	The MSS MUI Service shall provide the capability for the M&O Staff to register and unregister managed objects.
			C-MSS-12140	IR1	The MSS MUI Service shall provide the capability for an application to register and unregister managed objects.
			C-MSS-12180	IR1	The MSS MUI Service shall provide the capability for an application to display on-line help windows
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-60130	IR1	<p>The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events:</p> <ul style="list-style-type: none"> a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: <ul style="list-style-type: none"> 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: <ul style="list-style-type: none"> 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-MSS-12110	IR1	The MSS MUI Service shall provide a capability for applications to load and unload vendor or ECS defined MIB.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12020	IR1	The MSS MUI Service shall have the capability to respond to keyboard and mouse input devices
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-60080	IR1	The MSS Fault Management Application Service shall have the capability to establish, view, modify and delete thresholds on performance metrics it measures.
ESN-0910#Ir1	The ESN fault management shall provide the capability to perform the following functions, at a minimum, both locally and at the ESN network management facility: c. enable and disable event reports within a system d. manage error and event logging files		C-MSS-12120	IR1	The MSS MUI Service shall provide a capability for the operator to browse MIB values.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-60130	IR1	The MSS Fault Management Application Service shall provide the capability to detect the following types of faults, errors and events: a. communications software version mismatch errors b. communication software configuration errors c. the following errors in communication hardware: 1. host not reachable 2. router not reachable 3. errors and failures of communication links d. Errors in the communications protocols supported e. degradation of performance due to established thresholds being exceeded f. Peripherals g. Databases h. Applications: 1. process missing (Application or COTS product) 2. process in a loop 3. process failed
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
			C-MSS-12080	IR1	The MSS MUI Service shall provide a capability for applications to alert the M&O Staff
			C-MSS-12090	IR1	The MSS MUI Service shall provide a capability for applications to establish a dialog session with the M&O Staff
			C-MSS-60080	IR1	The MSS Fault Management Application Service shall have the capability to establish, view, modify and delete thresholds on performance metrics it measures.
ESN-0920#A	The ESN shall provide a set of utilities to perform diagnostic and testing functions for purposes of fault isolation.		C-MSS-60310	IR1	The MSS Fault Management Application Service shall provide utilities to perform diagnostics and testing of the following for the purpose of fault isolation: a. connectivity between pairs of ECS hosts and ECS routers b. ability to reach hosts and routers c. availability of network services at hosts

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-0920#B	The ESN shall provide a set of utilities to perform diagnostic and testing functions for purposes of fault isolation.		C-MSS-60310	IR1	The MSS Fault Management Application Service shall provide utilities to perform diagnostics and testing of the following for the purpose of fault isolation: a. connectivity between pairs of ECS hosts and ECS routers b. ability to reach hosts and routers c. availability of network services at hosts
ESN-1000#A	The ESN network management function shall have the capability to build histories for different types of errors and events, and the capability to analyze errors and recommend corrective action wherever practical.	A: Manual	C-MSS-18040	A	The MSS Management Data Access Service shall maintain the integrity of the management database.
			C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-60610	A	The MSS Fault Management Application Service shall have the capability to build histories for different types of errors and events detected, for the purpose of analysis.
			C-CSS-10090	A	The CSS shall interface with a TBS external time source for coordinated universal time (UTC).
			C-CSS-25120	A	The CSS Time Service shall provide the utilities required to synchronize system time across all components.
			C-CSS-25130	A	The CSS Time Service shall have the capability to synchronize it's time to one or more external time sources.
			C-CSS-25140	A	The CSS Time Service shall maintain an accuracy of 500 milliseconds within all ECS distributed components.
			C-CSS-25010	A	The CSS Time Service shall adjust the time kept by the operating system at every node.
			C-CSS-25020	A	The CSS Time Service shall be used to obtain timestamps that are based on Coordinated Universal Time (UTC).
			C-CSS-25030	A	The CSS Time Service shall provide an API to retrieve timestamp information.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-25040	A	The CSS Time Service shall provide an API for converting between binary timestamps that use different time structures.
			C-CSS-25050	A	The CSS Time Service shall provide an API for converting between binary timestamps and ASCII representations.
			C-CSS-25060	A	The CSS Time Service shall provide an API for converting between UTC time and local time.
			C-CSS-25070	A	The CSS Time Service shall provide an API for manipulating binary timestamps.
			C-CSS-25080	A	The CSS Time Service shall provide an API for comparing two binary time values.
			C-CSS-25090	A	The CSS Time Service shall provide an API for calculating binary time values.
			C-CSS-25100	A	The CSS Time Service shall provide an API for obtaining time zone information.
			C-CSS-25110	A	The CSS Time Service shall utilize a UTC based time provider.
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
ESN-1000#B	The ESN network management function shall have the capability to build histories for different types of errors and events, and the capability to analyze errors and recommend corrective action wherever practical.		C-MSS-18040	A	The MSS Management Data Access Service shall maintain the integrity of the management database.
			C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-60610	A	The MSS Fault Management Application Service shall have the capability to build histories for different types of errors and events detected, for the purpose of analysis.
			C-CSS-10090	A	The CSS shall interface with a TBS external time source for coordinated universal time (UTC).
			C-CSS-25120	A	The CSS Time Service shall provide the utilities required to synchronize system time across all components.
			C-CSS-25130	A	The CSS Time Service shall have the capability to synchronize it's time to one or more external time sources.
			C-CSS-25140	A	The CSS Time Service shall maintain an accuracy of 500 milliseconds within all ECS distributed components.
			C-CSS-25010	A	The CSS Time Service shall adjust the time kept by the operating system at every node.
			C-CSS-25020	A	The CSS Time Service shall be used to obtain timestamps that are based on Coordinated Universal Time (UTC).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-25030	A	The CSS Time Service shall provide an API to retrieve timestamp information.
			C-CSS-25040	A	The CSS Time Service shall provide an API for converting between binary timestamps that use different time structures.
			C-CSS-25050	A	The CSS Time Service shall provide an API for converting between binary timestamps and ASCII representations.
			C-CSS-25060	A	The CSS Time Service shall provide an API for converting between UTC time and local time.
			C-CSS-25070	A	The CSS Time Service shall provide an API for manipulating binary timestamps.
			C-CSS-25080	A	The CSS Time Service shall provide an API for comparing two binary time values.
			C-CSS-25090	A	The CSS Time Service shall provide an API for calculating binary time values.
			C-CSS-25100	A	The CSS Time Service shall provide an API for obtaining time zone information.
			C-CSS-25110	A	The CSS Time Service shall utilize a UTC based time provider.
			C-MSS-18060	A	The Management Data Access Service shall provide the capability for an application to access management data.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-25150	B	The CSS Time Service shall be interoperable with the time service provided within DCE environment
			C-CSS-25160	B	The CSS Time Service shall support remote time access

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-18050	A	The MSS Management Data Access Service's shall utilize CSS Services to access/transfer management data.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
ESN-1010#A	The ESN shall provide, for selective use as a debugging aid, the capability to perform packet tracing of its supported protocols.		C-MSS-60320	A	The MSS Fault Management Application Service shall provide, for selective use as a debugging aid, the capability to perform packet tracing of protocols used in ECS.
			C-HRD-34000	A	The LAN Analysis Equipment shall provide protocol analysis through the transport layer for all ISS LAN protocols and interconnection protocols to MANs/WANs.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-HRD-34010	A	The LAN Analysis Equipment shall include: a. Communications line monitors to store and display up to 10,000 bytes of data sent and received over any of the communications lines at rates of 10MB/sec to 100MB/sec, and supporting the protocols used within and interconnecting ECS. b. Local Area Network analyzers
ESN-1010#B	The ESN shall provide, for selective use as a debugging aid, the capability to perform packet tracing of its supported protocols.		C-MSS-60320	A	The MSS Fault Management Application Service shall provide, for selective use as a debugging aid, the capability to perform packet tracing of protocols used in ECS.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
			C-ISS-02200	B	The ISS-INHW CI LAN Analysis Equipment shall provide protocol analysis through the transport layer for all ISS LAN protocols and interconnection protocols to MANs/WANs.
			C-ISS-02210	B	The ISS-INHW CI LAN Analysis Equipment shall include a Communications line monitor.
			C-ISS-02220	B	The ISS-INHW CI communications line monitor shall store and display up to 10,000 bytes of data sent and received over any of the communications lines at rates of 10Mbits/sec to 100Mbits/sec.
			C-ISS-02230	B	The ISS-INHW CI communications line monitor shall support the protocols used within and interconnecting the ECS.
			C-ISS-02250	B	The ISS-INHW CI LAN Analysis Equipment shall include Local Area Network analyzers.
ESN-1030#A	The ESN shall perform periodic testing of alternate communication capabilities to verify that they are operational.		C-MSS-60330	A	The MSS Fault Management Application Service at each site shall have the capability to perform periodic testing of all ECS communication links at that site to verify that they are operational.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test
ESN-1030#B	The ESN shall perform periodic testing of alternate communication capabilities to verify that they are operational.		C-MSS-60330	A	The MSS Fault Management Application Service at each site shall have the capability to perform periodic testing of all ECS communication links at that site to verify that they are operational.
			C-MSS-16100	IR1	The MSS Monitor/Control Service shall perform the following protocol test on managed network nodes: a. IP test b. TCP test c. SNMP test d. UDP test e. ICMP test

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1060#A	The ESN performance management function shall provide the capability to evaluate the performance of ESN resources and interconnection activities.		C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66230	IR1	The MSS performance management application service shall allow each performance metric threshold to be configurable.
			C-MSS-66240	IR1	The MSS performance management application service shall be capable of evaluating each performance metric against defined thresholds.
			C-MSS-66120	IR1	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: a. on-line b. off-line c. in test mode
			C-MSS-66130	IR1	The MSS performance management application service shall be capable of receiving operational state change notifications from network components, hosts, applications, and peripherals.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66190	IR1	The MSS performance management application service shall provide a configurable number of thresholds for each performance metric.
			C-MSS-66200	IR1	The MSS EMC performance management application service shall be capable of creating a list of suggested initial threshold values for each performance metric.
ESN-1060#B	The ESN performance management function shall provide the capability to evaluate the performance of ESN resources and interconnection activities.		C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66230	IR1	The MSS performance management application service shall allow each performance metric threshold to be configurable.
			C-MSS-66240	IR1	The MSS performance management application service shall be capable of evaluating each performance metric against defined thresholds.
			C-MSS-66130	IR1	The MSS performance management application service shall be capable of receiving operational state change notifications from network components, hosts, applications, and peripherals.
			C-MSS-66121	B	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: a. on-line b. off-line c. in test mode d. In maintenance, e. in simulation mode.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66190	IR1	The MSS performance management application service shall provide a configurable number of thresholds for each performance metric.
			C-MSS-66200	IR1	The MSS EMC performance management application service shall be capable of creating a list of suggested initial threshold values for each performance metric.
ESN-1060#Ir1	The ESN performance management function shall provide the capability to evaluate the performance of ESN resources and interconnection activities.	IR1: Total applicability	C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-16040	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to receive ECS management traps/events.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66230	IR1	The MSS performance management application service shall allow each performance metric threshold to be configurable.
			C-MSS-66240	IR1	The MSS performance management application service shall be capable of evaluating each performance metric against defined thresholds.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-66120	IR1	The MSS performance management application service shall be capable of determining the operational state of all network components, hosts, and peripherals to be: a. on-line b. off-line c. in test mode
			C-MSS-66130	IR1	The MSS performance management application service shall be capable of receiving operational state change notifications from network components, hosts, applications, and peripherals.
			C-MSS-66190	IR1	The MSS performance management application service shall provide a configurable number of thresholds for each performance metric.
			C-MSS-66200	IR1	The MSS EMC performance management application service shall be capable of creating a list of suggested initial threshold values for each performance metric.
ESN-1065#A	The ESN performance management function shall include trend analysis for prediction of loading and bottlenecks/delays.		C-MSS-67000	A	The MSS performance management application service shall be capable of extracting values of performance metrics gathered for a specified managed objects over a configurable period of time from the Management Database.
			C-MSS-67010	A	The MSS performance management application service shall be capable of generating a graph of the extracted performance metric values.
ESN-1065#B	The ESN performance management function shall include trend analysis for prediction of loading and bottlenecks/delays.		C-MSS-67000	A	The MSS performance management application service shall be capable of extracting values of performance metrics gathered for a specified managed objects over a configurable period of time from the Management Database.
			C-MSS-67010	A	The MSS performance management application service shall be capable of generating a graph of the extracted performance metric values.
ESN-1070#A	The ESN shall provide the capability to perform the following functions, at a minimum: a. generate/collect network statistics b. control collection/generation of network statistics c. store system statistics and statistical histories d. display the system statistics e. track end-to-end transaction performance		C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-90080	A	The DBMS shall support mathematical operations to generate statistics from management data to include: a. average b. maximum c. minimum d. standard deviation e. sum f. count g. variance
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: <ul style="list-style-type: none"> a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66250	IR1	The MSS performance management application service shall record an event in the local History Log whenever a threshold is crossed.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66180	IR1	The MSS performance management application service shall have the capability to generate the following types of statistics for a configurable period of time for performance data stored in the Management Database: <ul style="list-style-type: none"> a. average b. median c. maximum d. minimum e. ratios f. rates g. standard deviations.
			C-MSS-66260	IR1	The MSS performance management application service shall provide queries that generate performance statistics from performance data stored in the Management Database.
			C-MSS-66270	IR1	The MSS performance management application service shall store generated performance statistics.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.
ESN-1070#B	The ESN shall provide the capability to perform the following functions, at a minimum: a. generate/collect network statistics b. control collection/generation of network statistics c. store system statistics and statistical histories d. display the system statistics e. track end-to-end transaction performance		C-MSS-18070	A	The MSS Management Data Access Service shall provide the capability to selectively access management data.
			C-MSS-90080	A	The DBMS shall support mathematical operations to generate statistics from management data to include: a. average b. maximum c. minimum d. standard deviation e. sum f. count g. variance
			C-MSS-18340	A	The MSS Management Data Access Service shall provide the capability for an application to selectively read a record from a log file
			C-MSS-18350	A	The MSS Management Data Access Service shall provide the capability for an application to load log files into the management database at the site
			C-MSS-36080	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS Host systems
			C-MSS-36090	A	The MSS Management Agent Service shall provide an extensible ECS management agent for ECS applications
			C-MSS-36100	A	The MSS Management Agent Service shall provide proxy agents for ECS network devices and applications that cannot be managed via SNMP.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36110	A	The MSS Management Agent Service shall provide an ECS domain manager agent to coordinate and communicate with multiple ECS management agents.
			C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66250	IR1	The MSS performance management application service shall record an event in the local History Log whenever a threshold is crossed.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-29030	B	The CSS Transaction Processing Service shall provide to the client and server the following features: a. Atomicity - All components of the transaction shall succeed or fail as a unit. b. Consistency - The actions performed by a transaction shall take data from one consistent state to another consistent state. c. Isolation - Transactions performed simultaneously shall not interfere with each other. d. Durability - The effect of committed transactions shall be permanent. Subsequent system failures shall not cause the unrecoverable loss of data.
			C-CSS-29060	B	The CSS Transaction Processing Service shall provide client request queuing during data server unavailability.
			C-CSS-29070	B	The CSS Transaction Processing Service shall provide client request dequeuing of queued requests when data server has rebooted.
			C-MSS-18360	B	The MSS Management Data Access Service shall provide the capability for the M&O staff to load log files into the management database at the site.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66180	IR1	The MSS performance management application service shall have the capability to generate the following types of statistics for a configurable period of time for performance data stored in the Management Database: a. average b. median c. maximum d. minimum e. ratios f. rates g. standard deviations.
			C-MSS-66260	IR1	The MSS performance management application service shall provide queries that generate performance statistics from performance data stored in the Management Database.
			C-MSS-66270	IR1	The MSS performance management application service shall store generated performance statistics.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.
ESN-1070#lr1	The ESN shall provide the capability to perform the following functions, at a minimum: a. generate/collect network statistics b. control collection/generation of network statistics c. store system statistics and statistical histories d. display the system statistics	IR1: a through d.	C-MSS-16020	IR1	The MSS Monitor/Control Service shall communicate via ECS management protocol with the MSS Management Agent Service to request management data on a managed object.
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-12005	IR1	The MSS Management User Interface (MUI) Service shall be compatible with the ECS management framework.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66250	IR1	The MSS performance management application service shall record an event in the local History Log whenever a threshold is crossed.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-12010	IR1	The MSS Management User Interface (MUI) Service shall provide a graphical user interface that is OSF/MOTIF compliant
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66180	IR1	The MSS performance management application service shall have the capability to generate the following types of statistics for a configurable period of time for performance data stored in the Management Database: a. average b. median c. maximum d. minimum e. ratios f. rates g. standard deviations.
			C-MSS-66260	IR1	The MSS performance management application service shall provide queries that generate performance statistics from performance data stored in the Management Database.
			C-MSS-66270	IR1	The MSS performance management application service shall store generated performance statistics.
			C-MSS-68010	IR1	The MSS performance management application service shall be capable of displaying M&O staff-selected performance statistics through the MUI in tabular and graphical formats.
			C-MSS-68020	IR1	The MSS performance management application service shall be capable of printing M&O staff-selected performance statistics.
ESN-1090#A	The ESN shall provide the capability to control the communications performance parameters of the network.		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66230	IR1	The MSS performance management application service shall allow each performance metric threshold to be configurable.
			C-MSS-66240	IR1	The MSS performance management application service shall be capable of evaluating each performance metric against defined thresholds.
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66190	IR1	The MSS performance management application service shall provide a configurable number of thresholds for each performance metric.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1090#B	The ESN shall provide the capability to control the communications performance parameters of the network.		C-MSS-16030	IR1	The MSS Monitor/Control Service shall be able to communicate via ECS management protocol with the MSS Management Agent Service to send ECS management set messages to configure and control the processing performed by the ECS management agent.
			C-MSS-16060	IR1	The MSS Monitor/Control Service shall allow the capability to set thresholds on managed resources that are monitored
			C-MSS-36020	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to respond to requests for managed object MIB attributes
			C-MSS-36050	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to receive ECS management set message from the Monitor/Control Service.
			C-MSS-36040	IR1	The MSS Management Agent Service shall communicate via ECS management protocol with the MSS Monitor/Control Service to send ECS management traps/events to the Monitor/Control Service.
			C-MSS-16050	IR1	The MSS Monitor/Control Service shall allow customized M&O staff-event notifications and automatic actions.
			C-MSS-16070	IR1	The MSS Monitor/Control Service shall automatically report when a threshold has been exceeded by generating a ECS management event
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-66230	IR1	The MSS performance management application service shall allow each performance metric threshold to be configurable.
			C-MSS-66240	IR1	The MSS performance management application service shall be capable of evaluating each performance metric against defined thresholds.
			C-MSS-16005	IR1	The ECS management protocol shall be the SNMP standard as specified in RFC 1157.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-36070	IR1	The MSS Management Agent Service shall provide an ECS management agent for network devices
			C-MSS-66190	IR1	The MSS performance management application service shall provide a configurable number of thresholds for each performance metric.
ESN-1140#A	The ESN shall provide protocol translation, termination, bridging and routing.		C-ISS-01080	IR1	The ISS shall reuse the V0 WAN in order to provide connectivity between V0 network nodes and V1 network nodes and to provide interoperability between the systems.
			C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
ESN-1140#B	The ESN shall provide protocol translation, termination, bridging and routing.		C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
ESN-1140#Ir1	The ESN shall provide protocol translation, termination, bridging and routing.		C-ISS-01080	IR1	The ISS shall reuse the V0 WAN in order to provide connectivity between V0 network nodes and V1 network nodes and to provide interoperability between the systems.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-01000	IR1	The ISS shall interoperate with the V0 Wide Area Network to provide IR-1 connectivity as specified in DID 220, "Communications Requirements for the ECS project".
ESN-1170#A	The ESN shall provide necessary translation within supported file transfer and e-mail services.		C-CSS-60520	IR1	The CSS File Access Service shall support the File Transfer Protocol (FTP).
			C-CSS-61040	IR1	The CSS Electronic Mail Service shall provide translation between SMTP and X.400 protocol.
ESN-1170#B	The ESN shall provide necessary translation within supported file transfer and e-mail services.		C-CSS-60520	IR1	The CSS File Access Service shall support the File Transfer Protocol (FTP).
			C-CSS-61040	IR1	The CSS Electronic Mail Service shall provide translation between SMTP and X.400 protocol.
ESN-1170#Ir1	The ESN shall provide necessary translation within supported file transfer and e-mail services.		C-CSS-61040	IR1	The CSS Electronic Mail Service shall provide translation between SMTP and X.400 protocol.
ESN-1180#A	The ESN shall interoperate with NSI to provide user access to ECS.		C-MSS-10080	IR1	The MSS shall interface with the NASA Science Internet (NSI) to exchange data identified in Table 5.1-1 as specified in ECS/NSI IRD, 194-219-SE1-001.
ESN-1180#B	The ESN shall interoperate with NSI to provide user access to ECS.				
ESN-1180#Ir1	The ESN shall interoperate with NSI to provide user access to ECS.		C-MSS-10080	IR1	The MSS shall interface with the NASA Science Internet (NSI) to exchange data identified in Table 5.1-1 as specified in ECS/NSI IRD, 194-219-SE1-001.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1181#A	The ESN shall provide an ECS Bulletin Board capability.		C-CSS-62050	A	The CSS Bulletin Board Service shall host the user registration service.
			C-CSS-62060	A	The CSS Bulletin Board Service shall provide the capability for copying files.
			C-CSS-62070	A	The CSS Bulletin Board Service shall support download of ECS toolkits.
			C-CSS-62080	A	The CSS Bulletin Board Service shall collect and maintain access history and statistical information for the service.
			C-CSS-62130	A	The CSS Bulletin Board Service shall provide a "What's new" feature which informs the user of the new information available on the bulletin boards.
			C-CSS-62390	A	The CSS Bulletin Board Service shall allow attaching ASCII or binary files to a message.
			C-CSS-62800	A	The CSS Bulletin Board Service shall interface for the applications to post a message to bulletin boards.
			C-CSS-62810	A	The CSS Bulletin Board Service shall allow attaching ASCII and binary files to a message.
			C-CSS-62820	A	The CSS Bulletin Board Service shall allow a message to be posted to multiple bulletin boards.
			C-CSS-62000	IR1	The CSS Bulletin Board Service shall be based on the following standards: a. TCP/IP b. NNTP c. SMTP d. Usenet message standard (RFC 850)
			C-CSS-62010	IR1	The CSS Bulletin Board Service shall support multiple (configurable) bulletin boards (newsgroups).
			C-CSS-62030	IR1	The CSS Bulletin Board Service shall provide concurrent access to multiple users (registered or non-registered).
			C-CSS-62040	IR1	The CSS Bulletin Board Service shall allow multiple messages for each bulletin board.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62100	IR1	The CSS Bulletin Board Service shall provide capabilities to authorized users (M&O staff) for: a. creating new bulletin board b. deleting existing bulletin board c. deleting message(s) from a bulletin board d. backing up bulletin boards e. forcing users off a bulletin board or the entire bulletin board service for backup f. collecting access history and/or statistical information. g. backing up bulletin boards.
			C-CSS-62120	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a posted message on a bulletin board by sending the response message to: a. the bulletin board (follow up) b. author of the original message (respond to author) c. named destinations (forward).
			C-CSS-62300	IR1	The CSS Bulletin Board Service shall be available to the users in interactive mode.
			C-CSS-62305	IR1	The CSS Bulletin Board Service shall allow user to subscribe to bulletin boards.
			C-CSS-62310	IR1	The CSS Bulletin Board Service shall allow user to unsubscribe bulletin boards.
			C-CSS-62320	IR1	The CSS Bulletin Board Service shall allow user to select a subscribed bulletin board for viewing summary of all messages in it.
			C-CSS-62330	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a message by sending the response to the bulletin board and/or to the author of the message and/or any other operator specified destination.
			C-CSS-62340	IR1	The CSS Bulletin Board Service shall provide capability: a. to search for a string in message headers or in message text. b. to search by author c. to search by subject.
			C-CSS-62350	IR1	The CSS Bulletin Board Service shall provide a catch-up feature which excludes user specified messages from appearing in the bulletin board when it is viewed next time.
			C-CSS-62360	IR1	The CSS Bulletin Board Service shall allow the users to post messages to bulletin board(s).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62380	IR1	The CSS Bulletin Board Service shall allow users to copy/save a message to their local system.
ESN-1181#B	The ESN shall provide an ECS Bulletin Board capability.		C-CSS-62050	A	The CSS Bulletin Board Service shall host the user registration service.
			C-CSS-62060	A	The CSS Bulletin Board Service shall provide the capability for copying files.
			C-CSS-62070	A	The CSS Bulletin Board Service shall support download of ECS toolkits.
			C-CSS-62080	A	The CSS Bulletin Board Service shall collect and maintain access history and statistical information for the service.
			C-CSS-62130	A	The CSS Bulletin Board Service shall provide a "What's new" feature which informs the user of the new information available on the bulletin boards.
			C-CSS-62390	A	The CSS Bulletin Board Service shall allow attaching ASCII or binary files to a message.
			C-CSS-62800	A	The CSS Bulletin Board Service shall interface for the applications to post a message to bulletin boards.
			C-CSS-62810	A	The CSS Bulletin Board Service shall allow attaching ASCII and binary files to a message.
			C-CSS-62820	A	The CSS Bulletin Board Service shall allow a message to be posted to multiple bulletin boards.
			C-CSS-62314	B	The CSS Bulletin Board Service shall allow the user to withdraw a message from bulletin board after posting.
			C-CSS-62000	IR1	The CSS Bulletin Board Service shall be based on the following standards: a. TCP/IP b. NNTP c. SMTP d. Usenet message standard (RFC 850)
			C-CSS-62010	IR1	The CSS Bulletin Board Service shall support multiple (configurable) bulletin boards (newsgroups).
			C-CSS-62030	IR1	The CSS Bulletin Board Service shall provide concurrent access to multiple users (registered or non-registered).
			C-CSS-62040	IR1	The CSS Bulletin Board Service shall allow multiple messages for each bulletin board.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62100	IR1	The CSS Bulletin Board Service shall provide capabilities to authorized users (M&O staff) for: a. creating new bulletin board b. deleting existing bulletin board c. deleting message(s) from a bulletin board d. backing up bulletin boards e. forcing users off a bulletin board or the entire bulletin board service for backup f. collecting access history and/or statistical information. g. backing up bulletin boards.
			C-CSS-62120	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a posted message on a bulletin board by sending the response message to: a. the bulletin board (follow up) b. author of the original message (respond to author) c. named destinations (forward).
			C-CSS-62300	IR1	The CSS Bulletin Board Service shall be available to the users in interactive mode.
			C-CSS-62305	IR1	The CSS Bulletin Board Service shall allow user to subscribe to bulletin boards.
			C-CSS-62310	IR1	The CSS Bulletin Board Service shall allow user to unsubscribe bulletin boards.
			C-CSS-62320	IR1	The CSS Bulletin Board Service shall allow user to select a subscribed bulletin board for viewing summary of all messages in it.
			C-CSS-62330	IR1	The CSS Bulletin Board Service shall provide the capability to respond to a message by sending the response to the bulletin board and/or to the author of the message and/or any other operator specified destination.
			C-CSS-62340	IR1	The CSS Bulletin Board Service shall provide capability: a. to search for a string in message headers or in message text. b. to search by author c. to search by subject.
			C-CSS-62350	IR1	The CSS Bulletin Board Service shall provide a catch-up feature which excludes user specified messages from appearing in the bulletin board when it is viewed next time.
			C-CSS-62360	IR1	The CSS Bulletin Board Service shall allow the users to post messages to bulletin board(s).

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-62380	IR1	The CSS Bulletin Board Service shall allow users to copy/save a message to their local system.
ESN-1206#A	The ESN capacity and performance shall be consistent with the specified capacity and performance requirements of the ECS functions.		C-HRD-36010	A	The EOC Operational LAN backbone shall be able to support a peak traffic rate of 24 Mbps to support AM-1 flows from the Ecom interface.
			C-HRD-36080	A	The ISS LANs at the Release-A DAAC sites shall be designed in a manner that allows a. Nodes to be added to any given LAN segment. b. Additional LAN segments to be added to the LAN.
			C-HRD-36090	A	The EOC Operational LAN shall be able to support 230 network devices without redesign.
ESN-1206#B	The ESN capacity and performance shall be consistent with the specified capacity and performance requirements of the ECS functions.		C-ISS-02390	B	The ISS-INHW CI LANs at the DAAC sites shall be designed in a manner that allows a. Nodes to be added to any given LAN segment. b. Additional LAN segments to be added to the LAN.
			C-ISS-20190	B	The ISS-INHW CI shall contribute to the response time and performance requirements specified in Appendix E (Section E.7 Table E-8) of the current version of 304-CD-005.
ESN-1207#A	The ESN capacity and performance shall be capable of expansion to be consistent with the specified capacity and performance growth requirements of the ECS elements and functions.		C-HRD-36010	A	The EOC Operational LAN backbone shall be able to support a peak traffic rate of 24 Mbps to support AM-1 flows from the Ecom interface.
			C-HRD-36080	A	The ISS LANs at the Release-A DAAC sites shall be designed in a manner that allows a. Nodes to be added to any given LAN segment. b. Additional LAN segments to be added to the LAN.
			C-HRD-36090	A	The EOC Operational LAN shall be able to support 230 network devices without redesign.
ESN-1207#B	The ESN capacity and performance shall be capable of expansion to be consistent with the specified capacity and performance growth requirements of the ECS elements and functions.		C-ISS-02400	B	The ISS-INHW CI EOC Operational LAN shall be able to support 230 network devices without redesign.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-20090	B	The ISS LANs at the Release B sites shall be capable of supporting twice the R-B network traffic load estimates without redesign.
			C-ISS-20100	B	The ISS LANs shall be designed in a manner that allows a. Nodes to be added to any given LAN segment.; b. Additional LAN segments to be added to the LAN.
			C-ISS-20190	B	The ISS-INHW CI shall contribute to the response time and performance requirements specified in Appendix E (Section E.7 Table E-8) of the current version of 304-CD-005.
ESN-1330#A	The ESN shall provide ISO/OSI data communications protocols and services specified in the GOSIP (see Figure 8-3) to external interfaces as required by the IRDs.	A: remove reference to GOSIP.	C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
ESN-1330#B	The ESN shall provide ISO/OSI data communications protocols and services specified in the GOSIP (see Figure 8-3) to external interfaces as required by the IRDs.	B: ASTER GDS interfaces to EDC DAAC only.	C-CSS-01220	A	The CSS DOF shall support the TCP and UDP communication protocols to communicate between the servers and the clients.
ESN-1340#A	The ESN shall provide support for TCP/IP communications protocols and services to external interfaces as required by the IRDs.		C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-ISS-02520	IR1	The ISS shall provide services based on the Open Shortest Path First (OSPF) protocol referenced in RFC 1583 to route traffic between the source and destination nodes, maintain route databases, and exchange routing information between networks.
			C-ISS-02530	IR1	The ISS shall provide services based on the Routing Information Protocol (RIP) referenced in RFC 1058 to route network traffic between the source and destination nodes.
ESN-1340#B	The ESN shall provide support for TCP/IP communications protocols and services to external interfaces as required by the IRDs.		C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-ISS-02520	IR1	The ISS shall provide services based on the Open Shortest Path First (OSPF) protocol referenced in RFC 1583 to route traffic between the source and destination nodes, maintain route databases, and exchange routing information between networks.
			C-ISS-02530	IR1	The ISS shall provide services based on the Routing Information Protocol (RIP) referenced in RFC 1058 to route network traffic between the source and destination nodes.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1340#Ir1	The ESN shall provide support for TCP/IP communications protocols and services to external interfaces as required by the IRDs.		C-ISS-02060	IR1	The ISS shall provide network layer services in compliance with one or more of the following protocols as appropriate to the type of the physical network supported. a. IP over Ethernet as specified in RFCs 894, 895, 826 (ARP), 903 (RARP) b. IP over FDDI as specified in RFC 1188, 1390 (ARP, RARP) c. IP over HiPPI as specified in RFC 1374 (includes ARP, RARP) d. IP over SMDS as specified in RFC 1209 (includes ARP, RARP)
			C-ISS-02000	IR1	The ISS shall provide connection oriented transport services as specified by the TCP protocol referenced in RFC 793.
			C-ISS-02020	IR1	The ISS shall provide connectionless transport services as specified by the UDP protocol referenced in RFC 768.
			C-ISS-02030	IR1	The ISS shall provide network layer services as specified by the Internet Protocol (IP) suite referenced in RFC 791.
			C-ISS-02050	IR1	The ISS shall provide ICMP network layer service as specified by RFC 792.
			C-ISS-02520	IR1	The ISS shall provide services based on the Open Shortest Path First (OSPF) protocol referenced in RFC 1583 to route traffic between the source and destination nodes, maintain route databases, and exchange routing information between networks.
			C-ISS-02530	IR1	The ISS shall provide services based on the Routing Information Protocol (RIP) referenced in RFC 1058 to route network traffic between the source and destination nodes.
ESN-1350#A	The ESN LANs shall provide physical devices and the corresponding medium access control (MAC) protocol compatible with ISO and ANSI standards.		C-HRD-31000	A	The ISS shall provide LANs at the following Release A sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-HRD-32000	IR1	The ISS shall use physical devices and Medium Access Control protocols compatible with the following standards: a. IEEE 802.2 (Logical Link Control) b. IEEE 802.3 (MAC for Ethernet) c. IEEE 802.6 (MAC for SMDS) d. ANSI X3T9.5 (MAC for FDDI).
ESN-1350#B	The ESN LANs shall provide physical devices and the corresponding medium access control (MAC) protocol compatible with ISO and ANSI standards.		C-ISS-02100	B	The ISS-INHW CI shall use physical devices and Medium Access Control protocols compatible with the following standards: a. IEEE 802.2 (Logical Link Control) b. IEEE 802.3 (MAC for Ethernet) c. IEEE 802.6 (MAC for SMDS) d. ANSI X3T9.5 (MAC for FDDI).
ESN-1350#Ir1	The ESN LANs shall provide physical devices and the corresponding medium access control (MAC) protocol compatible with ISO and ANSI standards.	This requirement applies to any ECS-supplied LAN.	C-HRD-32000	IR1	The ISS shall use physical devices and Medium Access Control protocols compatible with the following standards: a. IEEE 802.2 (Logical Link Control) b. IEEE 802.3 (MAC for Ethernet) c. IEEE 802.6 (MAC for SMDS) d. ANSI X3T9.5 (MAC for FDDI).
ESN-1360#A	The ESN shall control access of processes and users through an authentication and authorization service that meets GNMP standards.		C-HRD-23005	A	The Bulletin Board Server shall preserve DAAC autonomy of operations and aggregate all ECS DAAC authentication/authorization policies by user type and DAAC, to provide a integrated view of ECS for user registration, account administration, and authentication/authorization to ECS services.
ESN-1360#B	The ESN shall control access of processes and users through an authentication and authorization service that meets GNMP standards.		C-CSS-03210	B	The CSS-DCHW CI Bulletin Board Server shall preserve DAAC autonomy of operations and aggregate all ECS DAAC authentication/authorization policies by user type and DAAC, to provide a integrated view of ECS for user registration, account administration, and authentication/authorization to ECS services.
ESN-1365#A	The ESN shall isolate FOS with secure interfaces.		C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
ESN-1365#B	The ESN shall isolate FOS with secure interfaces.		C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-CSS-21220	B	The CSS Security Service shall provide a mechanism to authenticate client/server applications using the socket protocol for inter-process communications.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-ISS-21010	B	The ISS-INHW CI shall provide LANs at the following sites: a. GSFC DAAC LAN b. GSFC EOC LAN c. EDC DAAC LAN d. LaRC DAAC LAN e. MSFC DAAC LAN f. GSFC SMC LAN
			C-ISS-02010	IR1	The ISS shall provide the capability to filter packets based on the port/socket of the transport layer protocol.
ESN-1367#B	IST users not within FOS facilities shall communicate with secure interfaces only with the use of a data integrity service.		C-ISS-11180	B	The ISS shall provide for connectivity between the EOC and NSI for EOC/IST communications.
ESN-1380#A	The ESN shall provide counter-measures for the following security threats related to data communications: a. modification of data (i.e., manipulation) while in transit over the network b. disclosure of authentication information c. degradation in network or processing resource performance through denial of service attack d. Impersonation of authentication credentials or authorization privileges.		C-CSS-21010	A	The CSS Security service shall not transmit passwords in clear text across networks.
			C-CSS-21060	A	The CSS Security Service shall provide an API to accept server keys associated with services interactively at the startup of a service.
			C-CSS-21070	A	The CSS Security Service shall provide an API to store server keys associated with servers to a disk file.
			C-CSS-21080	A	The CSS Security Service shall provide an API to retrieve the server keys associated with services from a disk file at startup time to authenticate the service.
			C-CSS-21110	A	The CSS Security service shall authenticate the principal before checking whether the principal is authorized to access a service/resources.
			C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21130	A	The CSS Security Service shall provide an API to define the permission schema associated with a server/resource.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-21140	A	The CSS Security Service shall provide an API to create and maintain the ACLs associated with the server/resource in a database.
			C-CSS-21150	A	The CSS Security Service shall provide an API to save/retrieve the ACL database onto persistent store.
			C-CSS-21160	A	The CSS Security service shall provide the following APIs to MSS security management applications to retrieve/modify the access control lists associated with the ECS services/resources. a. to identify the permissions available to a principal b. to identify all the ACL managers protecting an object c. to get the printable representation of the permissions d. to locate the server with the writable copy of the ACL e. to read an ACL f. to write an ACL g. to test if the calling principal has some permissions h. to test if another principal has some permissions.
			C-CSS-21170	A	The CSS Security service shall provide an API to maintain the integrity of the data passing between processes by using checksums at the following three levels: a. connect level b. request level c. packet level
			C-ISS-02040	A	The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.
			C-CSS-21020	IR1	The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.
			C-CSS-21030	IR1	The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1380#B	The ESN shall provide counter-measures for the following security threats related to data communications: a. modification of data (i.e., manipulation) while in transit over the network b. disclosure of authentication information c. degradation in network or processing resource performance through denial of service attack d. Impersonation of authentication credentials or authorization privileges.		C-CSS-21010	A	The CSS Security service shall not transmit passwords in clear text across networks.
			C-CSS-21060	A	The CSS Security Service shall provide an API to accept server keys associated with services interactively at the startup of a service.
			C-CSS-21070	A	The CSS Security Service shall provide an API to store server keys associated with servers to a disk file.
			C-CSS-21080	A	The CSS Security Service shall provide an API to retrieve the server keys associated with services from a disk file at startup time to authenticate the service.
			C-CSS-21110	A	The CSS Security service shall authenticate the principal before checking whether the principal is authorized to access a service/resources.
			C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21130	A	The CSS Security Service shall provide an API to define the permission schema associated with a server/resource.
			C-CSS-21140	A	The CSS Security Service shall provide an API to create and maintain the ACLs associated with the server/resource in a database.
			C-CSS-21150	A	The CSS Security Service shall provide an API to save/retrieve the ACL database onto persistent store.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-21160	A	<p>The CSS Security service shall provide the following APIs to MSS security management applications to retrieve/modify the access control lists associated with the ECS services/resources.</p> <ul style="list-style-type: none"> a. to identify the permissions available to a principal b. to identify all the ACL managers protecting an object c. to get the printable representation of the permissions d. to locate the server with the writable copy of the ACL e. to read an ACL f. to write an ACL g. to test if the calling principal has some permissions h. to test if another principal has some permissions.
			C-CSS-21170	A	<p>The CSS Security service shall provide an API to maintain the integrity of the data passing between processes by using checksums at the following three levels:</p> <ul style="list-style-type: none"> a. connect level b. request level c. packet level
			C-ISS-02040	A	<p>The ISS shall provide the capability to filter packets based upon network layer source and/or destination addresses.</p>
			C-CSS-21020	IR1	<p>The CSS Security service shall provide the capability to create/modify/delete user accounts and privileges in the security registry.</p>
			C-CSS-21030	IR1	<p>The CSS Security service shall provide the capability to define/modify/delete group information in the security registry.</p>
ESN-1400#A	<p>The following security functions and services, at a minimum, shall be provided:</p> <ul style="list-style-type: none"> a. authentication b. access (authorization) control c. data integrity d. data confidentiality 		C-CSS-21110	A	<p>The CSS Security service shall authenticate the principal before checking whether the principal is authorized to access a service/resources.</p>
			C-CSS-21120	A	<p>The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.</p>

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-21130	A	The CSS Security Service shall provide an API to define the permission schema associated with a server/resource.
			C-CSS-21140	A	The CSS Security Service shall provide an API to create and maintain the ACLs associated with the server/resource in a database.
			C-CSS-21150	A	The CSS Security Service shall provide an API to save/retrieve the ACL database onto persistent store.
			C-CSS-21160	A	<p>The CSS Security service shall provide the following APIs to MSS security management applications to retrieve/modify the access control lists associated with the ECS services/resources.</p> <ul style="list-style-type: none"> a. to identify the permissions available to a principal b. to identify all the ACL managers protecting an object c. to get the printable representation of the permissions d. to locate the server with the writable copy of the ACL e. to read an ACL f. to write an ACL g. to test if the calling principal has some permissions h. to test if another principal has some permissions.
			C-CSS-21170	A	<p>The CSS Security service shall provide an API to maintain the integrity of the data passing between processes by using checksums at the following three levels:</p> <ul style="list-style-type: none"> a. connect level b. request level c. packet level
			C-CSS-21200	A	The CSS Security service shall support the Data Encryption Standard (DES) to encrypt and decrypt data.
ESN-1400#B	<p>The following security functions and services, at a minimum, shall be provided:</p> <ul style="list-style-type: none"> a. authentication b. access (authorization) control c. data integrity d. data confidentiality 		C-CSS-21110	A	The CSS Security service shall authenticate the principal before checking whether the principal is authorized to access a service/resources.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-21120	A	The CSS Security service shall provide an API to check the authorization privileges of principals to access/control services/resources.
			C-CSS-21130	A	The CSS Security Service shall provide an API to define the permission schema associated with a server/resource.
			C-CSS-21140	A	The CSS Security Service shall provide an API to create and maintain the ACLs associated with the server/resource in a database.
			C-CSS-21150	A	The CSS Security Service shall provide an API to save/retrieve the ACL database onto persistent store.
			C-CSS-21160	A	The CSS Security service shall provide the following APIs to MSS security management applications to retrieve/modify the access control lists associated with the ECS services/resources. a. to identify the permissions available to a principal b. to identify all the ACL managers protecting an object c. to get the printable representation of the permissions d. to locate the server with the writable copy of the ACL e. to read an ACL f. to write an ACL g. to test if the calling principal has some permissions h. to test if another principal has some permissions.
			C-CSS-21170	A	The CSS Security service shall provide an API to maintain the integrity of the data passing between processes by using checksums at the following three levels: a. connect level b. request level c. packet level
			C-CSS-21200	A	The CSS Security service shall support the Data Encryption Standard (DES) to encrypt and decrypt data.
			C-CSS-10600	B	The CSS DCCI shall accept User authentication request from CLS.
			C-CSS-10620	B	The CSS DCCI shall provide User authentication response to CLS .

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-10640	B	The CSS DCCI shall accept User authorization request from IOS.
			C-CSS-10660	B	The CSS DCCI shall provide User authorization response to IOS .
			C-CSS-10680	B	The CSS DCCI shall accept User authorization request from DMS.
			C-CSS-10700	B	The CSS DCCI shall provide User authorization response to DMS.
			C-CSS-65010	B	The CSS Secure Web service shall support POSIX compliant Access Control List (ACL).
			C-CSS-65040	B	Documents ACL on the web server shall be editable with any standard ACL editor.
			C-CSS-65060	B	The CSS Secure Web service shall support the Data Encryption Standard (DES) to encrypt and decrypt data.
			C-CSS-65070	B	The CSS Secure Web service shall support encryption of the HTTP protocol.
			C-CSS-65080	B	The CSS Secure Web service shall support private keys.
			C-CSS-65110	B	The CSS Secure Web service shall support a two-way authentication and authorization for the use by the web server.
			C-CSS-65120	B	The CSS Secure Web service shall authenticate and authorize DCE users using the web server.
			C-CSS-65180	B	The CSS Secure Web service shall provide the capability to support encryption to keep data exchange between the browser and the server confidential.
			C-CSS-65190	B	All requests from a client shall provide the web server with the individual user name.
			C-CSS-65200	B	The CSS Secure Web service shall use DCE's ACLs to protect all documents on the web server.
			C-CSS-65210	B	The CSS Secure Web service shall use the Extended Generic Security Service API for message passing applications to use DCE security .
			C-CSS-65240	B	The CSS Secure Web service shall provide attributes to the browser indicating documents with special security restrictions.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
ESN-1430#A	The ESN shall provide the following security event functions: a. Event detection b. Event reporting c. Event logging		C-MSS-76030	A	The MSS Accountability Management Service shall log, for each ECS host, incoming access attempts via: a. telnet b. FTP c. rlogin d. finger.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.
ESN-1430#B	The ESN shall provide the following security event functions: a. Event detection b. Event reporting c. Event logging		C-MSS-76030	A	The MSS Accountability Management Service shall log, for each ECS host, incoming access attempts via: a. telnet b. FTP c. rlogin d. finger.
			C-CSS-28000	IR1	CSS Event Logger Service shall provide capability to record event and history data to a application specific log file.
			C-MSS-36060	IR1	The MSS Management Agent Service shall provide an ECS management agent that is configurable to include: a. Community to respond to and set attributes b. Agent location & contact person c. Traps to send d. Events to log & log file name
			C-MSS-36010	IR1	The MSS Management Agent Service shall retrieve data from ECS managed objects in test or operational mode.
			C-MSS-70120	IR1	The MSS site Security Management Application service shall provide the mechanism, for each ECS host, to allow or deny incoming requests from specific hosts to services.
			C-CSS-28020	IR1	CSS Event Logger Service shall accept and record the application information (name and version of the calling application).
			C-CSS-28030	IR1	CSS Event Logger Service shall accept and record event message information.
			C-CSS-28040	IR1	CSS Event Logger Service shall accept and record the event type information. (Type of the event: fault, performance)
			C-CSS-28025	A	CSS Event Logger Service shall support predetermined logging levels that provide different levels of information.
			C-CSS-28010	IR1	CSS Event Logger Service shall accept and record event time (when the event was generated, obtained from the Time Service) information.
			C-CSS-28060	IR1	CSS Event Logger Service shall inform M&O staff if the event disposition narrative by the application demands so.

ESN RbR to L4 traceability

L3 RbR ID	L3 RbR Text	Interpretation	L4 ID	Rel	L4 Rqmt Text
			C-CSS-28070	IR1	CSS Event Logger Service shall record the operator/principle information that is relevant for the generated event.
			C-CSS-28080	IR1	CSS Event Logger Service shall record the environment information for the generated event.